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SOME SOCIAL-PSYCHOLOGICAL DIFFERENCES BETWEEN THE UNITED STATES AND GERMANY

KURT LEWIN

Iowa Child Welfare Research Station, State University of Iowa

The following considerations were supposed to be presented in 1933 at a meeting on cultural anthropology and psychology, where I was to speak about comparative education in the United States and Germany. The paper in its present form uses the field of education merely as a starting-point for a comparison of some properties of the general social life of these countries. The statements about the facts are based mainly on personal observations in various parts of the United States, which I tried to check as much as possible by the observations of other persons. Such procedure is certainly open to many objections, and I realize that these facts should (and, I think, could) be proved by statistics. Yet direct observation is, after all, recognized as a legitimate tool that cultural anthropology uses in its field studies. Besides, this procedure has certain advantages, which in my mind will make it always valuable as a starting-point, and as a guide to problems and new facts which later on may be checked by more elaborated indirect means.

The main purpose of this article is to present an example for applying to social problems certain topological and vector-concepts, developed in psychology.[1] It may show the value of these concepts for "describing" certain facts adequately and for connecting a group of otherwise independent facts, in a way which permits logically strict derivation.[2]

[1] Kurt Lewin, *Principles of Topological Psychology* (New York, 1936). Kurt Lewin, "Psycho-Sociological Problems of a Minority Group," *Character and Personality*, 1935, III, 175-187; J. F. Brown, "Towards a Theory of Social Dynamics," *Journal of Social Psychology*, 1935, VI, 182-213.

[2] It is important to emphasize the possibilities which these concepts offer for deriving many independent facts from a few assumptions. Without this advantage, topology would be just a new, but not a better, type of scientific language.

So far as I can see, the scientific situation in sociology is in many respects similar to the state of psychology. Both sciences try to make the step from a speculative to an empirical theory on the one hand, and from a literary to a scientific description of a given situation on the other.[3] Both sciences must, therefore, proceed from abstract classifications to concrete *constructions* based on an operational definition.[4] The use of the topological and vector-concepts may have particular advantages for the important field of problems which lies between cultural anthropology and psychology, because this field should be especially interested in dynamic concepts which are equally applicable to psychology and sociology.

The Educational Reality

Education is in itself a social process involving sometimes small groups like the mother and child, sometimes larger groups like a school class or a community of a summer camp. Education tends to develop certain types of behavior, certain kinds of attitudes in the children or other persons with whom it deals. The kind of behavior and the attitude it tries to develop, and the means it uses, are not merely determined by abstract philosophy or scientifically developed methods, but are essentially a result of the *sociological* properties of the group in which this education occurs. In considering the effect of the sociological group on the educational system, one generally thinks of the ideals, principles, and attitudes which are common within this group. Indeed, ideals and principles play an important part in education. But one will have to distinguish the ideals and principles which are "officially" recognized from those rules which in reality dominate the events in this social group. Education depends on the real state and character of the social group in which it occurs.

The educational processes, even within a small educational unit like the family, depend to a high degree on the spirit of the larger social body in which the persons are living. Any change in the political, economic, or social structure of this larger group, like the nation, deeply affects not only the organization of education, but its whole spirit and technique as well.

Of course the educational system in every nation varies greatly

[3] Kurt Lewin, *A Dynamic Theory of Personality*, trans. D. K. Adams and Karl Zener (New York, 1935), pp. 1-42.

[4] P. W. Bridgman, *The Logic of Modern Physics* (New York, 1927); E. G. Boring, *The Physical Dimensions of Consciousness* (New York, 1933).

within different families and schools. Nevertheless, there exists a *general cultural atmosphere* which is the "background" for all special situations. In sociology, as in psychology, the state and event in any region depend upon the whole of the situation of which this region is a part. The general atmosphere has, therefore, a direct bearing upon the education within any sociological unit. The degree of this influence depends mainly upon the degree to which the educational unit in question (the particular family or school) is dynamically separated from the larger enclosing region.

In recent decades we have had striking examples of the high degree to which a changing distribution of political power has changed both the aim and practice of education. Those who have had the opportunity to observe closely enough the behavior of school teachers (for instance, in Germany between 1917 and 1933, especially in the period 1931-1933) could easily see how even small changes in the general political situation affected, almost from day to day, not only the ideals which they taught, but also the educational methods which they employed (such as the type and frequency of punishment, the amount of drill, and the degree of freedom and independence in learning.) Times of political change show very impressively the high degree to which education, in nearly all of its aspects, depends upon the social structure of the group. *It seems to be easier for society to change education than for education to change society.*

Methodological Considerations

As obvious as this influence of the sociological situation on education is, and as sensitively as education reacts even to the smallest changes in society, it is nevertheless difficult to determine just what these changes are and to find concepts which express them adequately. The influence which the change in social situation has on education can not be characterized adequately by describing the changing of programs and organizations, because these facts do not sufficiently determine the dynamic factors of the educational situation, that is, those factors which constitute the influence of education on the behavior, the personality, and the ideals of the growing child. The degree of pressure under which the child stands is generally more important than any particular educational measure or single educational act.

One may argue that such general characteristics as "freedom," "authority," and "social atmosphere" are too vague and too delicate

to be grasped through any really strict concepts. Yet one will have to realize that such general terms are not only commonly used in characterizing a particular education, but are, in fact, most important dynamic characteristics of any social-psychological situation. To some extent "human nature" is everywhere the same and certain social characteristics are alike in all capitalistic states within the so-called "western culture."

OBSERVED DIFFERENCES

The Space of Free Movement

If one approaches the description of a situation from a dynamic point of view (that is, from a point of view which should finally allow prediction), one has to understand the situation as a totality of possible events or actions. Every change in its social position, like promotion from one grade to the next, or becoming friends with a group of children, or change in wealth of his family, means that certain things, persons, or activities are made available or cease to be available. One may speak here of the *space of free movement* and its boundaries. By movements, we have to understand not only bodily locomotions but, above all, social and mental "locomotions."[5] These three kinds of locomotion are somewhat different, but all three are to be recognized in psychology and sociology as real events.

The space of free movement of a person or a social group can be represented as a topological region encircled by other regions that are not accessible. Mainly two factors prohibit the accessibility of regions. One is the *lack of ability,* for instance, lack of skill or intelligence. The other is *social prohibition* or any kind of taboo which stands as a dynamic "barrier" between the person and his goal. The child may be able to grasp an apple, but the mother may have forbidden him to do so.

For the educational situation, the extent of free movement is a most fundamental characteristic. In an institution, for instance, it is generally more restricted than in a family. If the progressive movements of the last twenty-five years in education have emphasized the idea of freedom, this has meant chiefly two things: the recognition of the child's own needs and will, and the avoidance of

[5] Lewis, *Principles of Topological Psychology.* There one can find also the definition of the concepts: barrier, region, communication, which are used later.

too many restrictions. Such tendencies should increase the child's space of free movement.

It is not easy to compare the actual space of free movement of the average child in the United States and in pre-Hitler Germany. To compare, for instance, the general instructions for teachers does not lead very far, because the same words have different meanings in different countries; and the gap between the ideals which the educational procedure pretends to follow, and the actual procedure is often remarkable. A more reliable symptom seems to be the technical procedures the teachers use, such as the frequency of intervention, the conditions under which they intervene, whether they talk commonly with loud or low voices, etc.

A second difficulty for the comparison is the fact that one can find in both countries families and institutions which grant very little freedom to the children, while the children in other families and institutions are quite free. Furthermore, there are differences between the educational institutions in different parts of the United States and within Germany, and differences between different social classes. In comparing the two countries one should, therefore, as far as possible, refer to children of similar classes and to institutions of equivalent status and function in both countries. Since my experience in the United States concerns mostly people of the middle class, I will refer mainly to this group. Nevertheless, somewhat similar differences may be found between other social strata in both countries.

To one who comes from Germany, the degree of freedom and independence of children and adolescents in the United States is very impressive. Especially the lack of servility of the young child toward adults or of the student toward his professor is striking. The adults, too, treat the child much more on an equal footing, whereas in Germany it seems to be the natural right of the adult to rule and the duty of the child to obey. The natural relation of adult and child is in the United States not considered that of a superior *(Herr)* to the subordinate *(Untergebener)* but that of two individuals with the same right in principle. The parents seem to treat the children with more respect. Generally they will be careful, when requesting the child to bring some object, to ask them in a polite way. They will let the child feel that he is doing them a favor in a situation in which the German parent is much more likely to give short orders. It is more common in the United States to hear a

parent thank the child after such action. The parent may even do so after he has had to apply considerable pressure in order to make the child comply, whereas the same situation in Germany would probably lead to "the next time you should do it right away." In Germany the adult will tend to keep the child in a state of submission, while the American may want to put the child back to an equal footing as soon as possible.

The American will often say to a child, "If I were you, I would do that and that," in a situation in which a German might say, "You have to do that immediately." Of course such difference may be merely a matter of differences in the style of language. For on the whole, the American is more apt to use polite language. But such differences of style are themselves significant (see below). At any rate there seems to be a real difference in the degree of respect for the right and the will of the child as another person. In America, when traveling with a young child, one has to protect the child against being touched or kissed less often than in Germany.

The same difference in the basic relationship between the child and the educating adult is found in the schools and nursery schools. Coming from Germany, one notices how slowly and reluctantly a nursery school teacher approaches the scene of a tussle between two youngsters. At first such procedure seems almost to indicate a lack of interest on the part of the teacher. But, in fact, the nursery school teacher has been taught to follow this procedure. Whenever the teacher wants to interfere with the child's activities, he has to approach the child slowly and gradually. If there is any possibility of settling the problem without him he has to avoid interference. In the progressive German nursery school of the pre-Hitler period the idea of the child's independence was stressed too, especially in the Montessori-Nursery Schools. But the degree of difference in the actual procedure can hardly be exaggerated and is easily noticeable even in the most representative German training schools for nursery school teachers. A similarly marked difference exists in regard to a second rule for the American nursery school teacher; namely, to be friendly and to speak in a soft voice to the child regardless of his reaction. In Germany, interference of an adult is not only more frequent, but generally more loud and sudden. It occurs much more often in a spirit of command, demanding obedience. I have learned that under the Nazi régime the leading training school for nursery school teachers in Germany has to advise

their students not to explain an order, even if the child could understand the reason. In this way, the children should get the habit of obeying blindly and absolutely, not from reason, but from belief or love. Such principle is in line with a basic rule of the totaliterean state, which was announced again and again, especially in the first year of its régime: to command those below, to obey those above. Certainly such advice to the nursery school teacher goes much farther than that given in pre-Hitler Germany. Nevertheless, one might consider such procedure as an extreme expression of a relation between adult and child which, in comparison with the United States, has always been noticeable in Germany.

The battle of the totalitarean state against reason and intellectual discussion, as "liberalism," is quite logical, because reasoning puts the person involved on a basis of equality. To give reasons in education is therefore a "democratic procedure."

Closely related to the respect for the rights of the child is the tendency of American education to help the child in every way to become practically independent as soon as possible. Much care is taken to develop means and techniques which permit the child to dress himself, to feed and serve himself, and to perform other parts of the daily routine independently. Similar tendencies are common to progressive education in all countries, but the actual freedom of choice and the actual degree of independence intended by the adult, and reached by the child, seem to be considerably higher in the United States than in a comparable German milieu.

All these facts seem to indicate that the space of free movement for the child in American education is greater than in pre-Hitler Germany. Yet there are facts which might make such a conclusion doubtful. American education may recognize the right of the child to a higher degree, yet the American educator certainly cannot be called more compliant than the German one. I was sometimes impressed by the rigidity with which the same nursery schools, which carefully follow the rules mentioned above, will enforce certain procedures. In spite of his greater independence, the American undergraduate, and even the graduate at the university in many respects, stands under more school-like regulations than the German student. The difference between the educational situation in the two countries seems, therefore, to be not only a difference in the amount of free space of movement, but a structural difference as well.

Degrees of Freedom and Sharpness of Boundaries

One has to distinguish within a life-space not only regions in which the person is entirely free to act and others which are entirely prohibited, but regions of an intermediate type: A certain activity may not be altogether prohibited, yet the person may feel somewhat restricted and hindered within this region. The different social groups a child belongs to, the atmosphere in the classes of its different teachers, the different social activities in which he is involved are often regions of different *degrees of freedom*.

One finds gradual and abrupt transitions between neighboring regions. The life-space as a whole shows different degrees of homogeneity. There are educational milieus in which, let us say, a medium degree of freedom is characteristic for nearly all regions. A child in a certain boarding school, for example, may not be very much suppressed, yet he may always feel somewhat under regulation. In other cases, the life-space may contain regions of a very high, and others of a very low, degree of freedom. The school, for instance, may be a region of rigid discipline and little freedom, whereas the atmosphere of his family life may be soft and provide plenty of freedom. A similar contrast may exist within the family life of a child as a result of a despotic father and a weak mother. The *degree of homogeneity* of a child's life-space is obviously dynamically important, both for his behavior and his development.

It is furthermore important whether *gradual* or abrupt transitions between neighboring regions prevail in a life-space. The space of free movement of two children may be similar in extent and structure; yet for the one child, the boundaries between the permitted and the forbidden regions may be clearly determined, nearly inflexible, and their recognition strictly enforced. For the second child these boundaries may vary relatively much from day to day (although their position may be on the average the same as for the first child) and may not be very clearly defined. His daily time-schedule may not be punctual. When he is supposed to go to bed he may get permission easily to play just one record and again another record, and then to say goodnight lingeringly, interpolating several jokes before he finally goes to sleep. The frequency and the kind of exceptions granted to a child vary greatly. The reaction of the parents to a child's demand may be a clear-cut yes or no,

whereas another child may get all degrees of intermediate answers. In other words, the prevailing sharpness of the boundaries between neighboring regions vary greatly.

The educational situation in the United States as compared to Germany seems to be characterized by *regions of very different degrees of freedom and sharply determined boundaries of these regions* (Figures Ia and Ib). In a Froebel nursery school in Germany, for

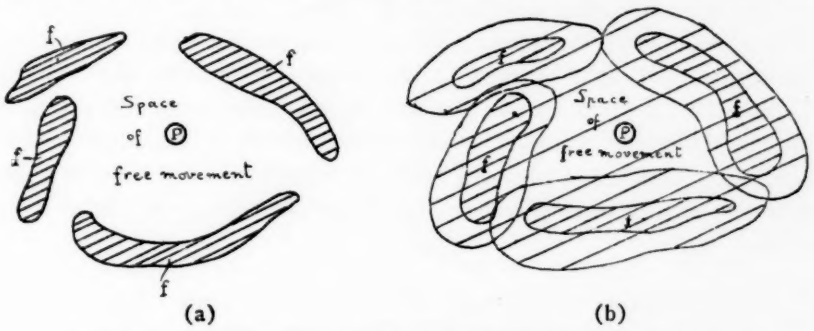


FIGURE I. TYPICAL SITUATIONS OF AN EDUCATIONAL ATMOSPHERE (a) THE UNITED STATES (b) GERMANY

(a) Life space with sharp boundaries and great qualitative differences between neighboring regions.

(b) Life space with unsharp boundaries and relatively small differences between neighboring regions.

The density of the hatching represents the degree of restriction.
P = person f = forbidden region

example, the child is usually more guided and regulated in his play and his outdoor activities than in a comparable American nursery school. The American nursery school, on the other hand, is more likely to emphasize the necessity of strict rules for the daily routines, e.g., at meals. On the whole, it seems that the educational atmosphere in German institutions, as well as in German homes, is more *homogeneous,* lacking regions of such a high degree of freedom, and having less strictly defined limits than are found in a similar institution or home in the United States. The new totalitarean Germany, of course, has taken decisive steps to increase the homogeneity in education, as well as in every other field, thus creating an all-inclusive, highly regulated situation.

Besides its greater homogeneity the life-space of the American educational situation seems to have *sharper boundaries* between its different regions. I have mentioned already that American education considers it a main issue to create in the young child a habit of greatest punctuality in the daily routine. That implies a sharp

boundary of an important group of daily activities in the life-space of the child. A similar time structure is characteristic for the American student. The student at the American university is likely to have a fixed time-schedule worked out in advance for a much longer period and in greater detail than does the German student. He may plan the number of hours he will spend per week on research for a period of six months ahead. He sets strict time limitations on his work more often than a student in a similar social and scientific position in Germany. It is more likely that a student will forget time limitations and lose himself in his work in Germany than in the United States (this fact is not due to a higher economic pressure on the American student). The common use of examinations at least every half year, unknown in the German university, does a good deal for cutting the work at the American university into well-defined regions.

The Structure of American Education as an Expression of the American Style of Living

I have mentioned in the beginning that the educational situation and the educational procedure are to a high degree determined by the social situation of the country as a whole. The prospective teacher, of course, learns pedagogical reasons for the techniques he is supposed to apply; they are claimed to be favorable for the development of the child. In fact, the good American nursery school is in my judgment pedagogically better than that of any other country. Yet one will have to realize that the procedure in the American nursery school is, at least to a very high degree, not the result of scientific psychology, but an expression of the American style of living and of the more empirical way the American tests his technique of handling human beings. To some degree, one can find the main characteristics of the educational situation probably in every field of American life.

The most common epithet which the United States has had in Europe is: "the country of great contrasts," "country of unlimited possibilities." The moving frontier has offered freedom, the possibility to leave disliked places. Even today the American citizen is much more ready to shift his home to a new district than the German of a similar social group. This willingness to shift distinguishes, for example, the American farmer very distinctly from the peasant in the comparatively narrow and overcrowded Germany.

There are large regions of activities in which the average American is very free. Yet, if he steps over certain boundaries which are relatively sharply defined, he will find himself quite forcefully treated. The same abrupt transition which we find in American education is observable in other fields of social life. For example, one notices the way the policeman conducts himself with extreme politeness or extreme roughness ("third degree") according to the situation. Like the American climate, the American economic and social life includes extremes (the biggest and best even in crime). The American does not mind, or even prefers, extremes in close proximity. In business life, the American seems more inclined to take risks, selling or buying on a large scale. One is more accustomed to someone's getting rich or poor quickly.

The various regions of activity within the social life of the United States seem to be more circumscribed, more clearly distinguished and more sharply separated than in Germany. In America, two scientists or politicians may emerge from a hard theoretical or political fight and yet be on cordial terms with each other. In Germany, for most persons, a political or even a scientific disagreement seems to be inseparable from moral disapproval. The congratulations that the defeated candidate for the presidency sends to the elected, after a hard battle, would sound rather strange in Germany. It is another side of the same separation of regions of activity that certain social groups regard each other as equal in politics and business, but have nearly no connection in social life.

In his relation to time, the American shows a definite tendency to cut the field into sharply defined and separated regions: the people of the United States are more punctual than Europeans and take punctuality much more seriously. That a dozen guests who have been invited to an informal dinner party at seven all arrive between 7:00 and 7:08 is as unheard of in Germany as it is common in the United States. The luncheon gatherings with lectures or entertainments, which are so popular in the United States and practically unknown in Germany, would not be possible if the American public had not been accustomed to well-defined time-steps. The common American saying: "This work will take me so and so many minutes" is seldom heard in Germany, where people involved in work or play forget more often about the time altogether. Some American popular journals print the reading time of every article at the beginning.

On the whole, the differentiation of the educational situation into

relatively contrasting regions with sharp boundaries, seems to be characteristic for large fields of social life. Also the greater respect for the child seems to have its parallels in the general American social life. The average American seems to be much more hesitant to interfere with any situation in which somebody else is involved. If a German store is full of customers, the clerk will try to hasten from one to another, and he will be frequently approached with questions from one customer while he is busy with another. The American clerk, even under such conditions, usually grants to each customer enough time for a leisurely decision while the other customers are waiting patiently. The same "fairness" toward other persons can be seen at the bank or at the post-office during rush hours. A similar attitude determines the behavior of the average car driver toward a pedestrian who is crossing the street or toward a slowly driven car which he is unable to pass. On all such occasions the German is much more likely to become impatient, aggressive, and emotional. Not to stop a car, when a pedestrian wants to cross a street, would be considered reckless or at least impolite in the United States under conditions in which it would be customary in Germany. The person in the car feels, in Germany, "naturally" superior to the pedestrian, and expects the pedestrian to wait. The pedestrian on the other side joins "naturally" in this feeling and waits, quite in contrast to the American pedestrian.

Such cases are small yet significant criteria for the greater "respect" which the American has for the other individual. They show that the aversion against interfering with children, which we have mentioned in the educational fields, is but an expression of a different basic relation between the individuals in the United States and Germany. This difference is obviously closely related to the American's ideal of democracy, to the idea that fundamentally every person has the same right, regardless of whether he is rich or poor, the President, or an average citizen. The same lack of submissiveness which appears in the relation between child and adult is characteristic of the behavior of the American employee toward his employer, or of the student toward his professor. As an illustration, I may use a German working in a minor position in one of the German consulates in the United States. After the war he returned to Germany, working in a similar position in the governmental administration. His colleagues frequently told him that he did not "behave properly" toward his superiors. In spite of his best intentions such mistakes

of "impoliteness" occurred again and again. So he soon went back to his position in the United States, saying, "There we obey every order as well as in Germany, yet outside our obligation, we feel less inferior." (This happened in the pre-Hitler period.)

That the German children in the street car are supposed to offer their seats to the adults, a behavior no longer requested of American children of this generation, is only one of the many expressions of this different basic relation between individuals. Germans, even in the short period between monarchy and fascism, were influenced more constantly by the relation of superior and inferior than are Americans. The democratic idea of equal rights in the United States goes so far that one sometimes seems to ascribe even the same abilities to every person and to consider lack of success a proof of moral inferiority. In the same direction points the ideal of self-sufficiency of every individual. It makes the adolescent more eager than in Germany to become self-sustaining as soon as possible. It seems to be one of the reasons why American well-to-do fathers are willing to give huge sums to public institutions. A generosity of such degree is unknown in Germany, where fathers are more eager to preserve as much as possible for their children.

Apparent Contradictions

The properties of the educational and general social life which I have mentioned seem to be in line with each other, at least in so far as they do not contradict each other. But it would be misleading not to mention some trends, both in education and in other social fields, which seem to point somewhat in opposite directions. In spite of the democratic idea of equality of men, proclaimed in the American constitution as one of its basic principles, there are probably no other people as interested in *individual accomplishments,* in sports, movies and elsewhere, and as ready to honor such individuals in every way as the Americans. The interest in individual differences is in American education distinctly greater than in Germany. Tests concerning individual differences are much further developed and are applied on a much larger scale than in any other country. This fact is mainly the result of the genuine interest which the educational system and the general public takes in "personality." Every newspaper is full of society news, pictures of debutantes and brides, pictures of leaders, or distinguished students at the universities and high schools. Newspapers in smaller towns publish good

achievements of a school child such as perfect spelling and arithmetic papers. All this is practically unknown in Germany. The interest in personal achievement has decidedly determined the development of American psychology, and is one of the reasons why the "social status" of psychology is much higher in the United States than in Germany (even in the pre-Hitler period), where philosophy is considered as much more important than psychology.

A second point, which might seem not in line with the facts mentioned above, is the homogeneity of American social life. We have spoken about the differentiation of the educational and the general social situation in contrasting regions with sharp boundaries. Yet in some respects the social life in the United States seems to be much more homogeneous than in Germany. The architecture and the character of the towns and villages varies decidedly more in Germany than in the United States. Despite Germany's smaller size and the new immigrant groups in the United States, the differences in language and in habits between the people in various parts of the country seem to be greater in Germany. I have mentioned already that the differences between social classes and other historically determined social groups commonly is considered to be greater in Germany. The same chain stores can be found in every village throughout the United States. American hotels differ much less than German ones. Standardization is further developed. The whole social life in the United States shows some kind of uniformity.

THEORETICAL INTERPRETATION

Historical and Systematic Explanation

One can try to explain the different properties of American and German social life historically. It is a valuable and important task to follow every step of the historical development which has led to a society with just such characteristics. But to answer, for instance, such problems as the influence of a special culture on the growing child, one has to answer besides, and one may say first, another problem. One has to face the educational situation with all its social and cultural implications as *one concrete dynamic whole.* One will have to understand the dynamic interrelations between the various parts and properties of the situation in which, and as part of which, the child is living. In other words, there should be a "systematic

explanation,"[6] besides the "historical" one, namely, an explanation of how these different parts and properties can exist within one concrete social whole. As in psychology, in sociology both the historical and the systematic question "why" is important, and neither question is finally to be solved without the other. Yet they are considerably different from the logical point of view, and the systematic explanation often has to be considered first.

If one wishes to understand the interrelation between the parts and properties of a situation, the possibility of their coexistence, and its possible effects upon its various parts (e.g., upon a child's development), it is necessary to analyze the situation. But this analysis must be a "gestalt-theoretical" one, because the social situation, like the psychological situation, is a dynamic whole. It means that a change of one of its parts implies a change of the other parts.

It is possible to represent the fundamental structure of a situation by means of topology, a mathematical discipline, which deals in a non-quantitative but nevertheless exact way with the possible relations between parts and wholes and with all kinds of connections between "regions." That wholes of various kinds play an important part in sociological phenomena is widely recognized. Topology gives the means to represent such wholes and their various relations in terms of well-defined mathematical concepts. Thus one is enabled to express in a scientific manner, e.g., the facts of social distances, connections, and locomotions. To derive the actual occurrence, it is necessary to make use of certain vector concepts. For the application of the topological and vector concepts it is necessary to supply coördinating definitions on an "operational basis."

I will try to discuss the interrelation between some of the mentioned properties of the social situation in the United States and Germany, using some dynamic concepts, closely related to topological concepts. It seems to me to be the first task of sociology, as of psychology, to determine the topology of the given field. All further determinations are uncertain or misleading as long as this task is not fulfilled.

It seems to be possible to interrelate several of the properties of American and German social life by using as a starting-point and center of the derivation, a certain assumption about the difference between the American and the German person as a social being. In

[6] Lewin, *A Dynamic Theory of Personality*, pp. 1-42.

this case, differences concerning groups would logically be derived from certain differences among their members.

I am eager to prevent any misunderstanding which may be attached to such a procedure. Using a statement about individuals as the *logical* center for the derivation does not imply that the differences between individuals are the *cause* of the differences of the group and its social life. On the contrary, I am convinced that the difference in the structure of the individual in Germany and in the United States is itself a result of his living in a different social set-up built by different histories. I think there is ample proof for this statement.

As an example for the necessity of distinguishing sharply between logical interrelations of statements and the causal interrelations between the facts concerned, I may point to a well-known property of so-called axiomatic systems. If one is to derive a group of statements from a few "axioms," one has generally a certain liberty concerning which of the statements one uses as axioms, and which as derivatives. Similarly, the logical interrelation of the social properties we are discussing can probably start as well with certain properties of the group as a whole, as with certain properties of their sub-groups, or of their members.

The Social Distance between Individuals in the United States and in Germany

Considering the structure of the individual as a social being, there seem to be the following differences between the typical American and typical German. The average *"social distance"* (the term used as in sociology) *between different individuals seems to be smaller in the United States so far as the surface regions,* or as one may say, the *"peripheral regions"*[1] *of the personality are concerned.* That means the American is more willing to be open to other individuals and to share certain situations with other individuals than the German.

Quite commonly strangers on the street may greet one another with a smile, a behavior unusual in Germany. People waiting for the bus may start to discuss the weather, and in the train, conversation between strangers starts more easily than in Germany. (There is certainly a difference between the people of a large and a small town, both in the United States and Germany. The Englishman,

[1] *Ibid.,* pp. 66-113.

at least outside of England, may be even more reserved in such situations than a German.) The American seems to be more friendly and more ready to help a stranger. It is more customary in the United States to invite a visitor, who is not a personal friend, to lunch or to one's home, than in Germany under similar circumstances. Nearly every German coming to the United States admires the natural ease and the efficiency with which the Americans generally take care of all the minor difficulties a newcomer has to face.

In boarding houses, one finds people sitting in their rooms with the door wide open, so that anyone might step in. The American seems to have decidedly less need for privacy in certain regions of life. It is possible to find the office door of even a president of a college open all day; so everybody can see with whom he is conversing and in what manner he is acting. Such behavior would be unthinkable in Germany even for an unimportant official, one of whose techniques in getting respect and showing his importance is to let people wait a long time in front of his closed door. In the United States it would be bad taste to let other persons wait, however great the difference in the social status of the persons involved may be. This difference between the United States and Germany is very striking, and is an expression of the democratic attitude toward the equal rights of everybody and of the greater general accessibility of the American.

The average American talks less loudly than the German, both in a private conversation, and in public. It may well be that this is due to the fact that the peripheral regions of the U-type are more accessible. Besides, the G-type tends, as we will see, to a more emotional and aggressive behavior.

Nevertheless, the average "social distance" between persons in the United States seems not to be smaller in every respect, but only in regard to more peripheral layers of the person. The more intimate, "central" regions of personality seem to be at least as separated between different persons, and at least as difficult to get access to as among Germans. For instance, relations between boys and girls might progress in the United States more easily up to a certain point, whereas the step leading to an intimate relationship seems to be more clearly marked than in Germany. In Germany, there is a more gradual transition in social relationships from the very peripheral to the very intimate. Germans entering the United States notice usually that the degree of friendly and close relation, which one may

achieve as a newcomer within a few weeks, is much higher than under similar circumstances in Germany. Compared with Germans, Americans seem to make quicker progress towards friendly relations in the beginning, and with many more persons. Yet this development often stops at a certain point; and the quickly acquired friends will, after years of relatively close relations, say goodbye as easily as after a few weeks of acquaintance.

An Operational Definition of Social Distance

If one wants to express these facts with topological and dynamic concepts, one has to ask what "social distance" between persons means from an operational point of view.

Two groups of facts seem to be possible for an operational definition of social distances:

1. One can start with the difference between the more "peripheral" and the more "central" regions of the person, taking the operational definition from the many kinds of experiments in which the relation of an activity to these different layers have proved to be of primary importance (experiments on psychological satiation, emotions, quasi-needs). The more central regions are defined as the more intimate, personal regions. In these regions the individual usually is more sensitive than in the peripheral.

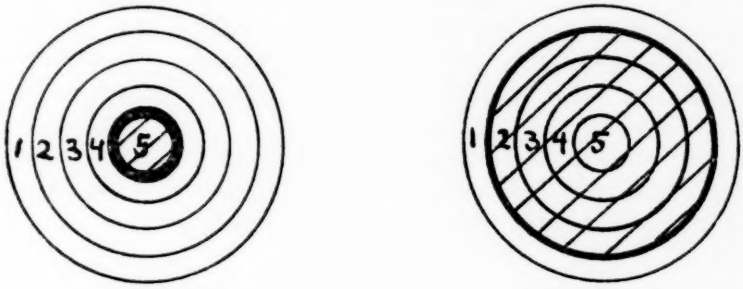
2. The second definition could make use of the way social distances generally are proved in sociology: The person A is asked whether he would share certain situations (like traveling in the same car, playing games together, dancing together, marry) with a certain person B. The differences in social distance can be defined as different degrees of intimacy of the situation which the person is willing to share with the other.

A certain distance, therefore, means, dynamically speaking, the accessibility of certain situations or activities of the person B for the person A, and the non-accessibility for more intimate situations. This accessibility to certain situations or activities is equivalent (or very closely related) to the possibility of B to communicate with certain, but not with the more central, layers of A.

So far as the state of the person A is concerned, a smaller social distance to B than to C means that more central regions of A are open to B than to C. The statement about the typical American compared with the typical German would mean that *ceteris paribus,*

the peripheral layers of the American show less resistance against communication from another person.

One can represent the greater "openness" by coördinating to the peripheral layers themselves or to their boundaries less resistance against communicative actions from outside. Figure II represents the state of the typical American (U-type, Figure IIa) compared with the German (G-type, Figure IIb).



(a) U-TYPE (b) G-TYPE

FIGURE II. PERSONALITY STRUCTURE

The thickness of the boundary lines between the personality layers represents the difference in accessibility. The hatched area corresponds to the "private" region of the person.

In the diagram, the degree of resistance against communication from outside is represented by stronger boundaries (heavier lines) around the layer in question. I distinguish arbitrarily the same number of layers within the person.

Using such means, one would have to symbolize the U-type, let us say, by four peripheral regions with easily permeable boundaries. Only the very central (fifth) region is insulated from communication to a high degree. In the G-type only the most peripheral region (first) is easily accessible. The more central are relatively difficult of approach. A major boundary lies already between the regions one and two (Figure IIb).

The facts available seem not to permit a statement about the relative permeability of every region. But they do seem to permit statements about position of the first main resistance against *invasion* from outside.

If the same effort which is necessary in a certain situation to communicate with the region one of a G-type would suffice to reach the region four of the U-type, the following equation would hold: $W(1+2+3)_U = W(1)_G$ (W means the resistance of a zone; U, the person of United States; and G, the person of Germany). It

can furthermore be stated that $W(1+2)_U < W(1+2)_G$. That means that the resistance offered by the given number of peripheral layers is less in the U-type than in the G-type.

Several facts seem to indicate that the *most intimate* region (fifth) is generally less accessible in the U-type than in the G-type. In this case $W(1+2+3+4)_U > W(1+2+3+4)_G$ would hold. We will not assume this fact in our further derivation. In any case, even if the degree of accessibility of the most intimate region (fifth) would be about the same [$W(1+2+3+4)_U = W(1+2+3+4)_G$], the dynamic boundary between region 4_U and 5_U would probably have to be stronger than between 1_G and 2_G.

On the whole, the decrease in accessibility from the peripheral to the central regions seems to correspond in Germany more to curve G (Figure III), in the United States more to curve U.

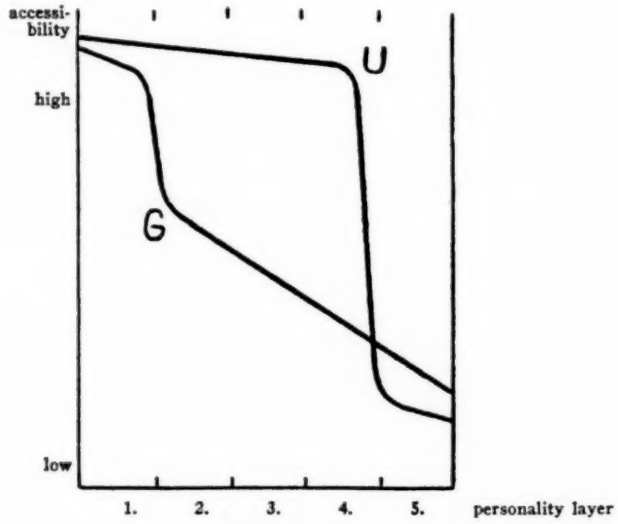


FIGURE III.

PRIVATE AND NON-PRIVATE PERSONAL REGIONS

If one considers the accessibility of the different regions not from the point of view of two individuals, but from that of the group, one will have to ascribe to the more peripheral regions, the field of open, common, "public" life of the individual, to the more central regions, the field of private life of the individual. This granted, one can

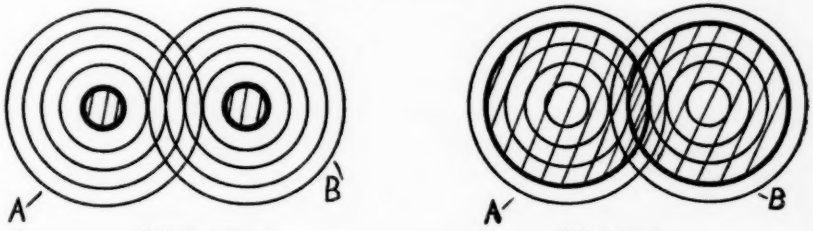
conclude from our basic thesis that more regions of the persons are considered of public interest in the United States than in Germany.

It seems to me that this statement can be illustrated by facts. Newspapers in the United States are full of descriptions of the clothes persons wore at certain occasions, who was invited for dinner by whom, and of the table decorations. As we mentioned above, in many respects more publicity is given to facts which would be considered private and of no public interest in comparable newspapers in Germany. Even informal gatherings have often a less intimate, private character than similar occasions in Germany. The techniques of make-up are discussed in the newspapers noticeably more often and in a more detailed manner in the United States.

Emotion, Friendship, and Friction

A second fact could be mentioned which is somewhat related to the same structural differences. The American is much less likely to respond with anger, or at least with open anger, to the hundred small misfortunes of everyday life. Several facts seem to converge to this effect. The American reacts generally to such accidents more from the point of view of action (he considers what has to be done next in order to remedy the situation), the German more from a moral point of view (he considers whose fault it was). Furthermore, such incidents are less likely to touch central regions of the person.[9] In other words, the range of events which correspond to the peripheral, non-private regions, seems to be comparatively greater for the American. This is entirely in line with our basic statement. As the private field includes more layers of the G-type, he is likely to act more emotionally.

This fact is of especial importance for the interrelationship be-



(a) U-TYPE (b) G-TYPE

FIGURE IV. TWO PERSONS (A AND B) IN COMMUNICATION

[9] Experiments have shown (Tamara Dembo, "Der Aerger als dynamisches Problem," *Psychologische Forschung,* 1931, XV, 1-114) that anger depends greatly upon the degree to which central regions of the person are involved.

tween several persons. One can ask how many layers of two persons (A and B, Figure IV) can come in contact with each other without touching the "private" regions. Communication between regions can be represented by overlapping, or by a common boundary of the regions in question. From our basic assumption, it follows that more regions can overlap in the U-type than in the G-type before private regions are touched. For instance, the overlapping of the three outer layers does not involve a communication between the private regions of the U-type (Figure IVa), whereas such overlapping would involve private regions of the G-type (Figure IVb).

This should have two results: It should make possible *relatively close relations between persons of the U-type without a deep personal friendship.* On the other hand, these persons should be *less in danger of personal friction.* Such friction occurs more easily if personal regions are touched. The facts mentioned seem to be well in line with both conclusions.

Actions and Ideals

The fact that there are more regions which are not considered "private" by the American does not mean that these peripheral regions are considered of less importance by him. On the contrary, if one considers the structure of the person as a whole, our basic assumption implies that the relative weight of the non-private regions is greater for a person of the U-type than for the G-type. The facts mentioned above point already in this direction.

A second fact can be mentioned here. The peripheral layers of personality include what one can call the "motoric region" of a person, or the "executive."[10] This region is the outer layer of the person, the one closest to the environment. It corresponds to the appearance and action of the person. That the relative weight of the appearance seems to be greater for the U-type was mentioned above. The *actions* are relatively more emphasized in the U-type. The American, as compared with the German, emphasizes achievement more than ideology or status. In science he emphasizes practice more than theory. The U-type prefers to make extensive "empirical" collections of facts. The greater relative weight which the central regions, and therefore the ideals and other "irreal" facts have for the German, is of fundamental importance for so-called German idealism as against American pragmatism. A similar

[10] Kurt Koffka, *Principles of Gestalt Psychology* (New York, 1935).

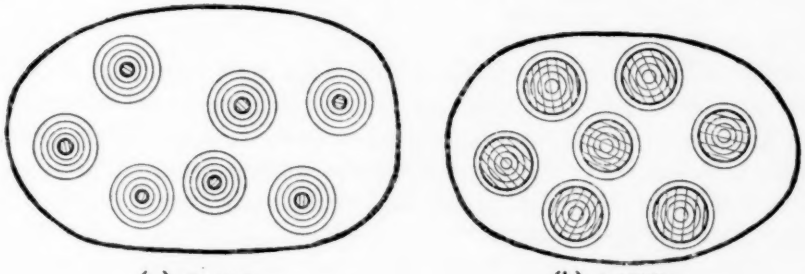
difference in attitude between Germans and Americans is striking in the fields of politics and religion.

The Degree of Homogeneity within a Group

If the central regions correspond to the more private life and the more peripheral regions to his open, "public" life, the latter should be more similar among individuals of the same social group than the former. For, without sufficient similarity of the regions, mutually accessible to most of the members of the group, the common intercourse and common social life would not be possible. (This holds true only to a certain degree.)

It may be that the most intimate regions contain so much of general human nature that they again are relatively alike among persons. In this case, the greatest dissimilarity among individuals within one group would exist between their regions of medium privacy.

The sum of the regions which show this degree of similarity would be greater for the group as a whole within a sample of 1,000 Americans than of 1,000 Germans. This can be derived in the following way: The average degree of similarity (DS) of the region $(1 + 2 + 3)$ among the members of the U-group (Figure Va) may be designated DS^{3}_{U}. The average degree of similarity DS^{3}_{G} of the corresponding region $(1 + 2 + 3)$ would be smaller among the G-group ($DS^{3}_{U} > DS^{3}_{G}$), for this region would already lie partly within the private zones of the G-type (Figure Vb) but not



(a) U-TYPE (b) G-TYPE

FIGURE V. HOMOGENEITY OF THE GROUP

of the U-type. In other words, to a given degree of similarity (DS) correspond more inclusive regions in the U-type than in the G-type. The sum (Σ) of regions (r) up to this degree of similarity (r^{DS}) in the group as a whole is greater in the U-sample than in the G-sample: $\Sigma r^{DS}_{U} > \Sigma r^{DS}_{G}$. *This means the U-group is more*

homogeneous than the G-group in respect to a greater number of personality regions.

It may be noted that a statement regarding the homogeneity of the members of a group does not include a definite statement about the organization of the group as a whole.

One can make the same conclusion from our basic statement about the different personality structures, without taking the trouble of detailed derivation by referring to the geometrical representations (Figures Va and Vb): For a given number of different individuals a, b, c, d, . . . the amount of private regions within the group as a whole is greater in the G-group than in the U-group. This conclusion is in line with the direct observations about the greater homogeneity which we have mentioned above.

The Degree of Similarity of Members of Different Groups

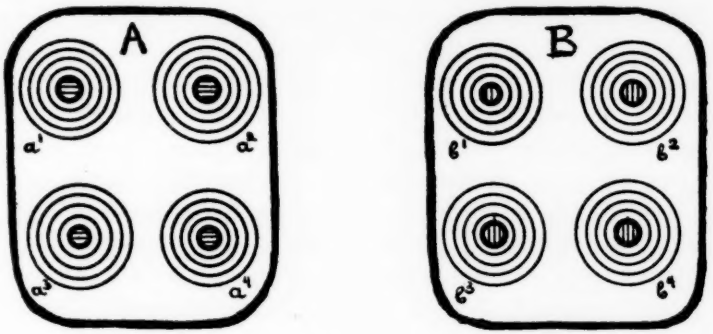
Given two groups in the same country, each homogeneous in itself, but different from each other, what is *ceteris paribus* the degree of similarity between members of such groups in the United States and in Germany?

One can answer this question best by considering an extreme case of full homogeneity within each group. In this case, the members (a^1, a^2, a^3, . . .) of the one group (A) would be all alike: $a^1 = a^2 = a^3 = . . .$ The same would hold for the members b^1, b^2, b^3, . . . of the second group (B): ($b^1 = b^2 = b^3 = . . .$). Figures VIa and VIb represent two such ideal groups both in the United States and in Germany. They show, at the same time, that the difference between the members of the two groups would be greater in Germany, for the amount of personality regions alike in both groups is greater in the United States. In other words, the probable difference of two homogeneous groups is greater in Germany than in the United States.

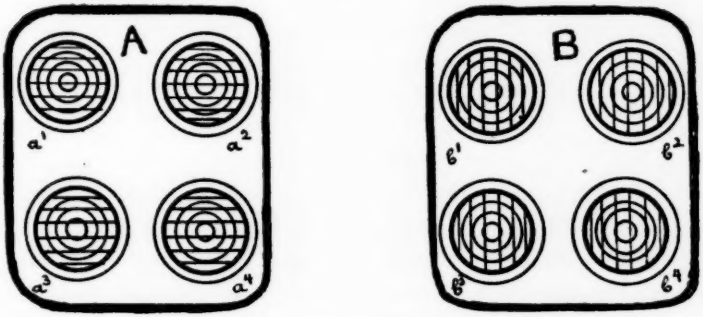
Observation seems to justify this conclusion relatively often. It has been stated frequently that distinct "classes" with generally recognized and fixed social status are more pronounced in Germany than in the United States.

Group Size

Closely related to this deduction is a second derivation of group properties from the personality structure of its members.



(a) U-TYPE



(b) G-TYPE

FIGURE VI. DEGREE OF SIMILARITY BETWEEN MEMBERS OF TWO DIFFERENT GROUPS A AND B

It is probably not possible to make a general statement concerning the optimum degree of similarity between members of a social group. This degree is different, e.g., for a club which is fundamentally based upon and sustained by the will of the members to associate, and on the other hand for a military group, which is sustained by the command of an officer. Nevertheless, there are groups of the first type, which presuppose a sufficient similarity between their members. If the individual differences within such a group become too great, the group will split; if the difference of the prospective newcomer from the average member is too great, the person will have to remain outside the group.

From our basic assumption it follows that the number of persons which can enter such a group is comparatively greater in the United States than in Germany. To enter a club or a political party means

that one is willing to share certain actions with its other members. In accordance with the statements on page 287 above one should find among a thousand persons of the U-type taken at random a greater number willing to coöperate in a certain (not too intimate) field of activity than among a thousand persons of the G-type. Referring to the graphical representation (Figure V), one can say: The adding of a single new person increases (on the average) the total amount of individual differences within a group more in a G-group than in a U-group. If, therefore, the amount of dissimilarity bearable for a group is limited this point is reached earlier within a G-group.

This conclusion also seems to fit the facts very well. Practically only two large political parties exist in the United States, whereas the political life in Germany has shown more than a dozen political parties. These individualistic trends have often been emphasized. ("Wherever three Germans come together, they found four associations.")

A second reason for splitting into relatively small and differentiated groups is the greater emphasis of ideas relative to action (page 286). The small number of Socialist votes in the American presidential election in 1932, e.g., was partly due to a tendency among Socialists, "not to waste their vote" for a candidate who would not win. One hears the expression of such a "practical" attitude much more frequently in the United States than in Germany. The G-type under similar circumstances was more likely to vote according to his ideals than in reference to a certain action.

We have mentioned that similarly individualistic trends of the G-type can be observed in relation to social gatherings. This fact can also be understood as the result of a greater amount of individual differences within the region $(1 + 2 + 3 + 4)$ of the G-type. The greater amount of individual differences among the regions $2 + 3 + 4$, and their minor accessibility decrease the number of people among which the G-type feels comfortable in a party.

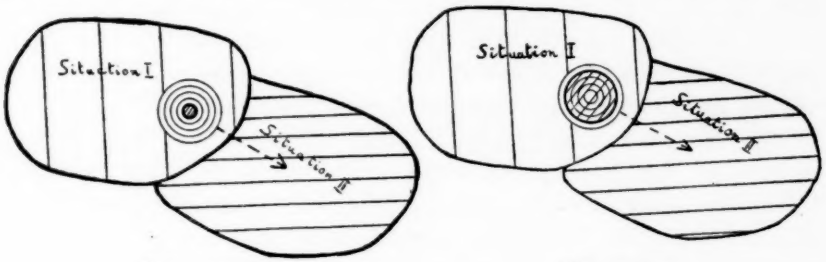
Persons in Different Situations

One can ask how much the U-type and the G-type will be affected by changes of the situation. This problem is related to questions mentioned in the beginning, but it is not easy to make clear derivations from our basic assumptions.

The person A may change from Situation I to the different

Situation II (Figure VII). The degree to which a person will be affected by this change depends not only upon the degree of difference between the Situations I and II, but also upon the kind of situations, and further, upon what one means by "change of a person."

Within the limitations following from these facts one can say: As the U-type has more layers which are relatively accessible, on the average, more layers of this type than of the G-type will be influenced by a change of the situation (Figure VIIa). That means the U-type (Figure VIIa) shows a greater difference in his behavior in accordance with the given situation than the G-type (Figure VIIb). In-



(a) U-TYPE (b) G-TYPE

FIGURE VII. CHANGE OF SITUATION

deed, the German *Geheimrat* behaves as *Geheimrat* in every situation. (Gross's caricature of two officials meeting in bathing suits, but nevertheless showing all the formalities of behavior, will be less appropriate for the United States.) We have previously mentioned (page 284) several facts which all point in the same direction: The greater area of private regions within the G-type means that he carries more of his specific individual characteristics to every situation. His behavior will therefore be less modified in altered situations. We have mentioned the fact that the behavior of the U-type separates more clearly the different fields of life. His greater "fluidity" and his tendency to go from one extreme to the opposite could be understood to a large degree from this greater dependability upon the situation because these changes in behavior occur generally as a response to a change of the situation.

A special application of the same rule could be related to the so-called rugged individualism of the American people. We have mentioned the apparent discrepancy between the greater accessibility of the U-type and his greater ease in making contacts on the one hand, his carefulness to avoid any kind of interference on the other

hand. Closer consideration seems to show that this difference can be understood as another example of a strong reaction to a situation: If A is outside a situation which has for him the character of belonging to the private sphere of B, he will be more reluctant to enter than the G-type, because he respects more the difference of these situations.

We mentioned in the beginning that more of the peripheral layers are easily accessible in the U-type, but that the private, central layers may be even less accessible. The respect for situations belonging to the private sphere of another person, and the rigidity and jealousy with which the own private sphere is guarded shows that a similarly great difference holds for the situations, objects and events belonging to these spheres. We will come back to this problem, when we discuss the distribution of power in both countries.

We have seen that social life in the United States seems to be, on the one hand, more homogeneous, but, on the other hand, its different regions seem to be more separated. These facts which may at first seem to be somewhat contradictory can now be understood as in accordance with each other: the social group shows a greater homogeneity in the United States. That means there are less differences between its sub-groups or its members. But the behavior of the same sub-group or the same individual will be less constant in different situations than in Germany and social life will therefore be more "fluid" in the United States.

Yet this statement needs some qualification. It is more likely that more peripheral layers of the U-type are touched by a situation. But from our basic assumption follows also that there is less likelihood that the "private" layers of the U-type than of the G-type become involved. In fact, the U-type is, as we have seen, less likely to react emotionally; he is more often able to keep his relation to the situation within the more peripheral layers of "action." He can more easily than the G-type preserve himself against being personally deeply entangled; he can keep his intimate central region more easily outside and therefore "above" the situation. It may well be that the greater punctuality and the better technical organization of his activities are partly due to this fact.

It may be well to emphasize that *sharpness* and dynamic *rigidity* of boundaries should not be confused. A field may be divided into regions of great contrast, and these contrasting regions may be directly adjacent (as represented in Figure Ia). In this case, one has to deal with sharp

boundaries. Nevertheless, considering the ease with which the field can be changed, the field may have to be called fluid: it may require only small forces to change the boundaries and the whole structure of the field. Sharp boundaries may and may not offer great resistance against locomotions; in other words, they may or may not be rigid.

On the other hand, fields with less contrasting regions and unsharp boundaries (Figures Ib) can be, at the same time, less fluid. Unsharp boundaries may, nevertheless, be difficult to pass, and rigid. Of course, they can be fluid too.

The American is proud of his ability to "take it." The German, too, has learned that a real man and fighter has to be able to stand severe blows. Yet the way this is accomplished seems to be typically different: The G-type is able to take it by appealing to his highest duty, and by throwing his whole person into the task. The U-type, on the contrary, tries to take it by keeping his personal layers as much as possible out, in other words, by "taking it easy," by "taking it with a smile" as a good sport.

This difference is related to a different attitude concerning right and duties in both societies. The relation between idealism and militarism in Germany and the structure of leadership in both countries will be discussed in a second article.

To prevent misunderstandings we may be permitted to state again certain goals which have guided us in writing this article. The different characteristics ascribed to the United States and to Germany should be taken as tentative descriptions. The differences mentioned are all differences in degree; they show a great variability within each country and may hold true only within certain groups. We did not include the negro and other minority problems.

The description deals only with the present situation without statement as to its duration or its history. The attempt to reveal some logical interrelations between certain characteristics of social groups and of their members as social beings does not answer historical questions of causation, but deals with "systematic" questions of dynamic interrelations exclusively.

SOME RECENT CONTRIBUTIONS TO THE THEORY OF PSYCHOMETRY

WILLIAM STEPHENSON
The Psychological Laboratory, University College, London

Psychometric and Physical Measurements

It is a strange fact that all measurements of an individual's abilities or traits, his character or his temperament, have hitherto only been made in terms of the similar measurements made on thousands of other individuals. Each person is measured for any such ability or trait by his place in the statistical distribution of a large number of persons, by what is known as his *standard* score. Even the cruder, but more popular devices used in present-day psychometry, such as are involved in the construction of *norms,* are dependent upon the use of large populations of persons.

Now length or weight or time is not measured in this statistical fashion. All other lengths are measured in terms of a single standard yard, either directly or indirectly, and the same applies to weight or time, each with its own standard. It is interesting to ask whether human personality can be measured in a similar way, *in terms of single persons,* each representing a standard, comparable in its own way with the physicist's yard, gram, or second. I propose to show that personality and physical types, and indeed abilities too, can be so measured.

In setting up norms, psychometry is in fact making standards of a kind. But norms are grossly averaged constructions, at bottom unscientific and unsound, and what is described in the sequel is something very different. It is necessary to take the reader into a new world of factor analysis, which offers a scientific foundation to type psychology, and, as a corollary, allows us to measure individuals, as I have said, in terms of a single person, instead of, as at present, in terms of a statistical group of persons.

Type Psychology

It is first necessary to clear up a matter that has hitherto kept two great regions of psychology apart. Psychometrists, those psychologists who attempt to measure abilities and traits, believe that psychological types do not exist. This is the opinion of writers too numerous to mention, from Professor Burt on the one hand,[1] to Clark Hull on the other.[2] Two persons, they consider, cannot be separate and distinct in type, because abilities or traits that the one has, the other must also have to some extent. Abilities are universal in extent, and not restricted to this person or the other. At most, types can only be regarded as extreme cases, tail ends of normal and continuously graded distributions of persons.

But there has been talk of personality and physical types since the dawn of history, even before the days of Hippocrates, in Chinese, Persian, and Indian writings, and such types have continued to be topics of interest right down the centuries until this present day. Type psychology now has its home in Europe, with authors such as Jung[3] and Kretschmer.[4] But whereas psychometry has tried to build its house with solid quantitative methods and science, type psychology has built on the straw-like foundations of personal idiosyncrasy and art. Driven to face the statistical findings of psychometry, type psychology has recently begun to deny the very possibility of measuring human personality.[5]

In papers elsewhere[6] I have shown that the psychometrist is quite in error when he says that types do not exist, and that the type psychologist is no less mistaken when he proclaims that the total personality, and types, cannot be measured or studied objectively. Psychological and physical types most certainly *do* exist, and can be measured by the very methods already used by psychometry, without

[1] Quoted by Ll. W. Jones, *Theory and Practice of Psychology* (New York, 1935), p. 9.

[2] Clark Hull, *Hypnosis and Suggestibility*, (New York, 1933), p. 75.

[3] C. G. Jung, *Psychological Types* (New York, 1923).

[4] E. Kretschmer, *Physique and Character* (New York, 1925).

[5] P. E. Vernon, "The American vs. the German Methods of Approach to the Study of Temperament and Character," *The British Journal of Psychology*, 1933, XXIV, 156.

P. E. Vernon, "Can the 'Total Personality' Be Studied Objectively?" *Character and Personality*, 1935, IV, 1.

W. Stern, "On the Nature and Structure of Character," *Character and Personality*, 1935, III, 270.

[6] W. Stephenson, *Type Analysis* (to be published shortly). The matter is also described briefly in my papers, "The Inverted Factor Technique," *The British Journal of Psychology*, 1936, and "Introduction to Inverted Factor Analysis," *The Journal of Educational Psychology* (to appear shortly).

in any way destroying the essential *wholeness* of the person. Nor are types merely the tail ends of continuous distributions; and type psychologists need not in the least deny or doubt that abilities and traits are universal in range, that is, that we all have such abilities in some degree. Finally, type psychology is not necessarily concerned with the presence of some traits in one person, and absence of them in another, although it could certainly contemplate such a possibility.

What, then, is type psychology? I believe that, if it desires to become scientific, it must have the standpoint which has been published in the papers just referred to. *Type psychology is primarily concerned with the disposition, scatter, or relative importance for the individual of the abilities or traits that are present in him.* It deals with traits measured relative to the individual only, and not necessarily to a whole population of other individuals as in psychometry today. Just as psychometry is concerned with one trait or ability at a time, and a large population of persons, so type psychology is merely the converse, and concerns itself with one person at a time, for a population of traits. Readers of this journal have already been introduced to this notion in a specific case, in my note on "Correlating Persons instead of Tests."[7]

Thus, to give a crude example, suppose that two persons have the following traits: intelligence, moodiness, serious-mindedness, tender-heartedness, elation, cheerfulness. The measurement of each of these separately is a statistical matter, the concern of present-day psychometry. Type psychology need not be concerned at all with such measurements (although it *can* be, and in future many studies will be made with such measurements as populations for type analysis), but only with the order or significance of them for the individual. For one person the traits may be ordered as above from intelligence which is most characteristic of him, to cheerfulness which is of relatively little importance in his total lived personality. Another person may have precisely the same traits, in *quantities* no less than in quality, and yet have them disposed in a very different way. Thus, a university professor and an auctioneer may be identical with respect to these traits as measured in psychometry. Circumstances conspire to make intelligence, moodiness, and serious-mindedness very characteristic of the professor—perhaps largely as an affectation, and yet truly representative of his personality—the other traits being of much less significance in his make-up. But the auc-

[7] *Character and Personality*, 1935, IV, 17-24.

tioneer's cheerfulness and elation may well color his whole personality, moodiness and intelligence being of lesser importance for him. If such traits are regarded as a population, the two persons may be correlated, and the one may correlate — 1.00 with the other. They would then be diametrically opposite in type.

Similarly two persons can be identical in type for the manic-depressive population of traits, but differ very much in intensity and duration for the traits concerned. The one might be a normal person, with balanced moods swinging from only mildly cheerful to slightly depressed; the other might be a patient in a mental hospital, with moods that vary from the supreme heights of elation to the uttermost depths of despair and dejection. The type is a matter of type analysis; the quantities of isolated traits, a matter of psychometry as it is pursued today.

But psychometry has now to grow up, to free itself from its adolescent preoccupation with only one aspect of its work. In future it must encompass not only individual differences with respect to single traits or abilities, but also individual differences in *type*. We can now measure the kind of type a person is, and his degree of typicality. In the future, too, one sees the day when a composite measure is made of the intensities or quantities of the traits entering into a type, so that, in the case just considered of the manic-depressive type, we shall have a measurement representing the total intensity of moods, as well as the degree of type. That is, type analysis offers to make three new kinds of measurements about a person, his types, his degree of typicality for such types, and his intensity for any such types.

Finally, isolated trait and type analysis can work together hand in hand. It is possible to measure two persons for their traits, all considered separately and measured as in current psychometry, with the object of using these measurements as a population in terms of which to determine the correlation between the two persons. For many such persons, personality or other types can then emerge. In the field of temperament and character such a procedure will point at least to type *potentialities,* but it would have to be determined whether these corresponded with the actual personality types of the persons.

The method of type analysis is that of correlating persons among themselves, for a given population of traits. The statistical devices

have been referred to already in this journal,[8] and in some detail elsewhere.[9] We analyze for types in terms of inverted factor theorems.

Standard Persons

The above, I know, can scarcely be plain and understandable to the reader. But I must ask him to bear with me a little longer, after which I shall come down from the heights of theory to the dense undergrowth of facts and measurements. With the above in mind, we can now turn to the problem of measuring persons in terms of a single standard or standards, each itself a person, instead of in terms of the statistical group as at present.

It is one of the important corollaries of type analysis and the inverted factor theorems, that they allow us to determine a *typical* person in respect of any given population of traits, in terms of which a type emerges—for, of course, no type at all need appear for a given population of traits. The typical person is the one to whom all others of the same type are approximating. The amount that a person approximates to any type is measured by his type-factor saturation or loading. I shall give an example of this, as well as of much that is described above, in the sequel. Meanwhile, perhaps the following example will serve.

Readers may recall the simple experiment on preference for *colors,* reported in this journal.[10] A population of sixty colored papers was used, to be ranged in order of preference by a person. The orders of preference were correlated, for a number of persons, and two *factors* emerged. That is, some persons correlated positively among themselves, others also correlated positively among themselves, but the one set did not correlate with the other, or correlated slightly negatively with it. Of any persons tested in this way, some would be of one type, some of the other, and some of neither, for the persons who correlate positively together are of a type in that respect. Obviously such people who correlate positively among themselves have *tended* to give the same order of preference to the population of colors. This order to which all approximate is in fact a description of the type or factor. That is, an order of preference can be calculated which is the typical order to which all persons of a type are approximating. Having once calculated it, it may be chosen as a standard, a standard person so to speak, and used thereafter to

[8] *Ibid.*
[9] Stephenson, "The Inverted Factor Technique."
[10] 1935, IV, 17-24.

calculate the factor-saturation, the degree of typicality, of any other person.

The degree of approximation to this standard person is shown by the correlation between this standard and any other person for this population of colors. We can measure all other persons on a scale from + 1.00 to — 1.00, for this type. A person who correlates + 1.00 with this standard order will himself be a truly typical person for these colors; a person who correlates 0.00 will have none of this type in his make-up; while persons with negative correlation will be of reverse or opposite type.

Standard persons with respect to a population of traits and the like can be estimated from a minimum of three persons—although it would supply a better estimation to use more. But just as common-sense laid down the standard English yard, so psychological insight may one day ask us to formulate a standard person with respect to certain traits. And, however derived, such standards can be used to measure all other persons subjected to the same population of traits or observations. Several standard persons may be necessary for any one population of traits—two, for instance, are necessary for the population of colors. Finally, the *distribution* of such measurements is a matter about which we can predict nothing, except that the range cannot be other than from + 1.00 to — 1.00. For some psychological features the distribution may be perhaps *normal,* for others, such as *eidetic* type, the type-saturations may be distributed extremely assymmetrically. The distribution, in all cases, is something for us to determine.

The problem I set out to solve, to bring the method of physics into the realm of personality measurement, is solved as far as type psychology is concerned. We can now supply standards, and measure all persons in terms of them, purely as a correlation coefficient.

Still Another Contribution to Psychometry

It will be observed, however, that a sharp distinction is drawn between type analysis and present-day psychometry or ability analysis. The above standard persons refer only to typology, and not to abilities or separate traits as these are measured in psychometry today. But if the problem of standard persons is solved for the one, can it also be solved for the other? That is, can we measure *abilities* by the method of type analysis? Can we arrive at a standard or

typical person, in terms of whom any other person can be measured for his ability?

The answer is that this can be done. I am to describe in a paper elsewhere[11] the first test of this kind, ostensibly like many others used in psychometry, by means of which any person can be measured for ability in terms of one standard person only. The idea is simply to have a population of intelligence tests or problems, made in such a way that only a brilliant person can put them in a certain order by operating his ability upon them, all lesser mortals putting them into orders less and less like this standard one, the less able the person is. Again, the correlation with this standard order, representing the most brilliant person to be tested, supplies a measurement of the ability of a person, irrespective of the population of persons tested or measured. Whether this method of measurement will prove to be of any great value or importance is a matter for the future. That it has interesting applications I have no doubt, especially for work on the cognitive abilities of twins, and for studies in heredity and the like.

Quod Semper

It is now time to reward the reader for following me so far into hitherto uncharted regions of psychometry—for, in future, this world must embrace both *type* and *ability* (trait) measurements. I have already said that it is too much to expect that I have made the above plain and understandable to every reader of this journal. It will take much work, and many papers, to amplify all that these paragraphs contain. I have no doubt that something of the above kind has been said before, in part at least. We can see, too, what an interesting region the type psychologists have been treading upon. But they have never got down to quantitative terms, and in their criticism of psychometry they have thrown out many babies, quite unnecessarily, with the psychometric bath-water. It is important for them, I believe, as it is certainly statistically neat and entertaining, to accept the fundamental postulate that whereas present-day psychometry deals with one trait at a time for a population of persons, type psychology begins with the study of one person at a time, for a population of traits. How this works in practice is shown in the example below.

[11] See a forthcoming number of *The British Journal of Psychology.*

Measurement of Types for a Population of Psychic Tempo Traits

I propose to take a population of little-used traits, those of psychic tempo,[12] subject them to a type analysis, and hope that this will shed perhaps a glimmer of light upon some of the obscurities lurking in many a dark corner of the above paragraphs.

The following is the population of traits:

smart	pushing
clever	bustling
flight of ideas	flightiness
abounding in ideas	lively
fluid	comfortable flow of energy
inspiratory	ponderously inhibited
distraught	moody by fits and starts
headstrong	systematic, consistent flow of energy
tenacious	pedantic
over-enthusiastic	fanatical
inhibited	obstructed

All these refer to *psychic tempo,* in Kretschmer's use of this term. Each was carefully defined, and described in a short paragraph. Thus, "smart" was defined as "somewhat intrusively forward, officious, and self-assertive; capable of making witty remarks, and good at repartee; inclined to be forward, pert, or impudent." This list is meant for use in psychiatry, but it may equally well be used with normal persons. In the experiment described below, I gave the list of twenty-two traits to a group of twenty-one persons, members of one of my classes, with instructions to understand what each trait really meant, and to place them on the following frequency distribution, for what they considered to be the respective significance of these traits in their own personality:

Score:	10	9	8	7	6	5	4	3	2	1	0
Frequency:	1	1	2	2	3	4	3	2	2	1	1

The trait most significant of them, in their own opinion, was to be given score 10, and that least significant, score 0. The correlations between all twenty-one persons are then calculated, for this population of twenty-two traits. The result is shown in Table I. I hope that readers will not be alarmed by a table of this kind. The interesting thing is quite obvious, even to a non-statistical reader, namely, that persons A to L correlate positively among themselves,

[12] Kretschmer, *op. cit.*

TABLE I. SHOWING CORRELATIONS OF TWENTY-ONE PERSONS A TO U, FOR A POPULATION OF TWENTY-TWO TRAITS.

Persons	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U		Type I Saturation	Type II Saturation
A	—	52	61	66	51	48	58	52	30	39	02	09	28	−05	10	40	38	57	10	43	65		66	37
B		—	56	53	50	50	64	58	62	40	55	00	−09	−32	−01	−20	−09	33	25	−02	10		77	−07
C			—	42	36	71	75	54	43	37	22	28	10	−15	−02	22	05	18	19	13	27		75	16
D				—	66	20	22	49	65	20	23	43	28	−30	14	−06	00	14	25	45	36		66	21
E					—	37	32	41	64	22	41	41	−13	−16	−03	−06	07	14	−01	18	48		68	−07
F						—	81	22	27	30	20	09	−07	−22	−08	16	36	31	03	03	29		57	09
G							—	61	34	56	19	18	00	−04	14	20	12	24	14	−01	20		74	16
H								—	53	64	20	32	10	−35	13	−08	−27	−08	09	−21	34		72	−04
I									—	22	56	47	−10	−50	−06	−41	−32	−08	22	−13	02		72	−29
J										—	27	41	−05	07	27	20	−15	11	15	−14	20		55	08
K											—	36	−40	−10	13	−31	−14	−10	45	−19	−32		43	−06
L												—	−05	−12	27	−04	−05	−37	20	01	00		41	−10
M													—	25	10	52	42	32	24	43	34		−08	60
N														—	20	46	34	25	29	28	22		−30	55
O															—	01	13	−20	40	36	15		11	21
P																—	63	36	14	54	45		−10	74
Q																	—	48	21	47	32		−09	71
R																		—	10	32	40		12	43
S																			—	37	01		26	38
T																				—	32		−07	74
U																					—		32	50

NOTE: The decimal point is omitted in each case; the correlation between persons A and B should read 0.52, etc.

and that persons M to U likewise correlate positively among themselves, whereas there is a tendency for the persons of one set to correlate negatively with those of the other set. We can next factorize this table, using inverted factor theorems. Two factors are sufficient to describe the table, No. I for persons A to L, and, after allowing for this one over the whole table, another, No. II, mainly in persons M to U. This is shown by the factor saturations, given in the two final columns of the table. Thus, person A has saturation or loading 0.66 with factor I, and 0.37 with factor II. This means that he correlates 0.66 with the factor or type I to which all persons of that type are approximating in some degree or other, and also 0.37 with the type II to which all persons of *that* type are approximating.

Person B, on the other hand, is on the average almost entirely of type I, to an amount 0.77.

When we look at the data for persons A to L, we find that they place liveliness, cleverness, inspiratory, pushing, fluent, smart, abounding in ideas, and tenacious towards the top of their list, i.e., as being more characteristic of them, and obstructed, inhibited, moody, and distraught at the bottom of their list. The standard or typical person, to a first approximation, gives the following marks to each of the twenty-two traits:

10 lively
9 systematic, consistent flow of energy
8 inspiratory
8 clever
7 comfortable flow of energy
7 tenacious
6 pushing
6 abounding in ideas
6 fluid, fluent in speech
5 smart
5 ponderously inhibited
5 headstrong
5 pedantic
4 bustling
4 flight of ideas
4 flightiness
3 distraught
3 over-enthusiastic
2 moody by fits and starts
2 fanatical
1 inhibited
0 obstructed

The persons of type II, on the other hand, tend to put these traits in a different order, and the standard person for this type is to a first approximation as follows:

10 inhibited
9 comfortable flow of energy
8 ponderously inhibited
8 distraught
7 flight of ideas
7 inspiratory
6 moody by fits and starts
6 pedantic
6 obstructed
5 abounding in ideas
5 systematic, consistent flow of energy
5 lively
5 over-enthusiastic
4 clever
4 headstrong
4 tenacious
3 smart
3 fluid, fluent in speech
2 bustling
2 fanatical
1 flightiness
0 pushing

The correlation of any other person's order of these traits with these two lists, will give his approximate saturation with factors I and II respectively, i.e., his degree of typicality for these two types.

Now I am not here concerned with subjective elements that, undoubtedly, enter into a person's estimation of himself. It is sufficient to regard the above as an example only. I believe that it must be the psychologist's place to know the person under examination, and

to find ways and means of assessing him for these traits. Indeed, true psychological insight and expertness can come to their own in terms of populations of traits of the above kind. But, even as the data stands, it is not without its immediate interest. Type I would undoubtedly seem to be of a more optimistic turn of mind, while type II supply altogether an unhappy account of themselves. And in fact it appears to be true that the persons in type I are either well balanced or cheerful in personality, while those of type II are somewhat shut-in and restricted. As is so often the case, naïve people can often render a very true account of themselves, and these subjects seem to have done so in terms of these few traits.

It will be observed, too, that we can determine how many persons of a number tested are of the one type or the other. In Table I, eleven persons are clearly of type I, and six of type II, the remaining persons being somewhat doubtful, or partly of both types. Statistical readers will also observe that the *typical* lists of traits given above for types I and II, are true regression estimates, obtained only from those persons who conform to the type. The statistical *determinacy* of any such type is a matter depending upon the correlations observed, and by chance alone we might find a person with perfect type saturation, i.e., an amount 1.00. But for small populations of traits, and all practical purposes, this exactness or determinacy is not a very pressing matter.

Conclusion

This, then, completes what I set out to say. For a full exposition readers can only be referred to my detailed papers, especially to one to be published shortly, on "Type Analysis." Several contributions to psychometry have been outlined, notably that which offers to bring type psychology within the folds of scientific psychometry, and which results in the interesting conception of a standard or typical person for a population of traits, this standard being merely a true estimate of the *nature* of a factor discovered by correlations and inverted factor theorems. It seems highly gratifying that the much abused and ancient viewpoint in psychology, that of personality and physical types, after many vicissitudes and misconceptions, has at last become crystallized into postulates and methods which render a scientific account of it, and which will make of it, surely, an unchallengeable feature of psychology. It seems to me a fascinating matter that type psychology is statistically merely the obverse of present-day psychometry, and that, after all, we can emulate the physicist and measure persons in terms of standard persons.

WAR AND PACIFISM: SOME INDIVIDUAL (UNCONSCIOUS) FACTORS*

EDWARD GLOVER
London

I trust I shall not disappoint you if I refrain from dealing with the individual or social aspects of man during an active state of war. Most of the views I wish to put before you are in the nature of humdrum information about the psychology of individual man whether at war or at peace. I hope on reflection you will admit that there is something to be said for this course. It is one that is accepted without question in the case of the natural sciences. If the subject of your study were, shall we say, the fighting habits of the tittlebat or the mongoose, you would doubtless agree that it would be good zoology to acquire some all round information about the tittlebat or the mongoose.

I am not so sure that you will agree with my second contention. Suppose that instead of studying the mongoose we invited the mongoose to make an all round study of itself and then report on its fighting habits. I am going to suggest that the report would be practically worthless. The mongoose would no doubt tell us that it was an animal more sinned against than sinning, in other words that it was a perfectly rational creature with, on the balance, a surplus of good instincts, which occasionally got into situations where it was compelled to fight. It would suggest further that on many of these occasions the motive for fighting was a purely economic one, that on others it did not want to fight, but that other and more evilly or stupidly disposed creatures forced it to behave in this ill-adapted and reprehensible manner. It would probably conclude by suggesting that if every variety of mongoose got together, this League of Mongoose could make it pretty hot for any refractory member, and so solve the problem of perverted combativeness.

* Being the substance of a lecture delivered to the Oxford University Psychological Society, January, 1936.

Not to mince matters I am going to suggest that one of the main drawbacks to understanding the nature of man, and hence to understanding the more ill-adapted of his actions, is the fact not simply that we examine ourselves, or that we examine ourselves from the surface inwards, but that we begin the examination with a very considerable bias in favor of our own reasonableness and goodness of intention. I do not suggest that these two characteristics are non-existent. They do exist, but they are completely misleading, and because they are misleading we are liable to make every mistake under the sun in attempting to cope with the problem of war.

You will gather then that I am one of those rather obnoxious people who believe that a psychological problem can be measured only when we have examined it from within outwards, in this case examined the sources of mental energy, the primary methods of controlling this energy—in short, the basic functions of mind. At the beginning I am going to say quite bluntly that so far from being on the whole a reasoning and reasonable animal, man only reasons or is reasonable under the most favorable circumstances. If you will let me put the matter in a slightly exaggerated form, I would say that our margin of sanity is in some respects thinned out to a very fine dividing line. And because we live more or less insecurely on this line during some of our waking hours we conclude that we are reasonable creatures, which is much as if a duck were to call itself an eiderdown quilt because of its breast plumage. It is not difficult to see that this margin is very attenuated. Those of you who remember your dreams will no doubt agree that this dream life is a very topsy-turvy affair, full of surprising emotions and peculiar ideas, if not at times altogether mad and absurd. Those who cannot remember their dreams might well study themselves on the point of falling asleep, when an idea will suddenly become a concrete object, or when a rational thought will suddenly become replaced by the most bizarre reflections. That is to say, in falling asleep we can sometimes observe ourselves step across the line into a territory where primitive impulses and primitive modes of thinking reign supreme. We can afford to some extent to look into our minds during sleep because being more or less immobile in bed we are comparatively harmless. Even so we do not at all like the look of ourselves: that is why most dreams are so successfully disguised. If you are still skeptical on the point I can only advise you to study three other sources of information, the wishes, thoughts, and behavior of the insane; the

wishes, thoughts, and behavior of small children; and the behavior of quite ordinary—so-called normal—adults. You may object to the validity of observations made on the insane on the ground that these are too abnormal, but you cannot make the same objection to observations on children and normal adults. I need only remind you that if by some magic a newly born and hungry baby could be brought on this platform and suddenly equipped with the stature and strength of a six-foot adult, there would be an immediate stampede in the hall. I for one would make a speedy exit, and it would take a dozen or so more courageous mortals to hold him in check. For until he had satisfied his appetites he would be an amoral and bloodthirsty cannibal, and when he had satisfied his appetites he would become a sleeping God, both of them heavy responsibilities to a civilized community. As for the rationality of adult man, I cannot hope to persuade you how irrational he is through the greatest part of his waking life. But I feel sure that if you took the trouble to catalogue and analyze one of your working days from waking to sleeping you would be surprised at the result. For you would discover how many of your simplest responses are due to fear, to superstitious belief, to suspicion, and to malice. I have maintained,[1] and still maintain, that in these respects there is really very little to distinguish the civilized person from the savage. What is more remarkable and more important for our present purpose, you would discover how many of your positive and apparently friendly activities were in the nature of defences intended to undo or cancel or suspend the effect of unconscious asocial and antisocial impulses.

Now this brings me to my second point, namely, the assessment of man's good intentious. The difficulty in making this assessment is again that man is an inveterate self-deceiver, and that one of his commonest self-deceptions is to confuse intention and conduct. So when he comes to compare his civilization with that of his progenitors he feels certain that he is a much more decent, altruistic, ethically disposed person. Now we might even agree that in the course of centuries his conscious *disposition* may have altered, although I must say that personally I do not feel too convinced of this. Even the cannibal has at times a genial disposition. The real issue is whether or not this disposition is translated into action. The modern European hastens to assure us that he does translate it into action, that he is not so brutal to his fellows, is kinder to animals and full of

[1] See *The Dangers of Being Human* (London, 1936).

friendliness. The Englishman, in particular, shows so many signs of what a German friend once called "a cosmic benevolence" that he has been roundly accused of hypocrisy by other nationals. I personally do not agree with these charges of hypocrisy. I think it can be established that in some respects and in some directions man has succeeded in inhibiting the more ferocious of his impulses. But this is very qualified praise, since it omits all reference to periodic outbreaks of war. During intervals of peace man may be kinder in physical expressions part of the time, but during a war phase he is more cruel all of the time. Even those who are precluded from sharing in the physical manifestations of war have ample scope for indulging mental hate and cruelty. I regard this argument as crucial, and should like to put it another way. When one comes to strike a balance between man's acquired kindliness and his uninhibited ferocity it is quite unscientific to exclude periodic outbreaks of war. The usual excuse for this unscientific procedure is of course that war is an exceptional state, and that in any case we do not approve of war so it should not count against us. A similar argument is frequently used by pacifists who wish to say that increased coherence of social organization will in the long run prevent war. They will say we have stopped dueling, so we can stop international dueling. Now it is true that the individual has permitted some of his aggression to be throttled down. But of course the State exerts these privileges on his behalf. Similarly it is said that counties no longer fight, so we are really progressing—or again that in the days of the Heptarchy no one would have supposed local wars would disappear, yet they did. That is historically true, yet still greater orgies of destruction took their place, their extent corresponding with the increased complication of social structure. The fact is that we cannot free ourselves from the responsibility for war phenomena by saying we do not approve of them. And taking our war activities into account, we have no reasonable ground for saying that man is any less ferocious than he was in the Stone Age.

May I just dwell a moment longer on this question of perspective? One of the greatest dangers of pacifism is the emphasis placed explicitly or implicitly on good intentions. However genuine they may be in themselves, when correlated to the activities of the whole group, they correspond in effect to the smile on the face of the tiger. There are at least two, if not many more, animal actors underneath the social skin of mankind. The greatest mistakes and the most

dangerous consequences can arise when one actor becomes convinced that he is the whole animal. This is almost perfectly illustrated by the foreign policy of England at the present moment. Those of you who have seen the famous performing horse inspired by the Griffiths brothers may recall the situation when the forelegs and hindlegs are shying in different directions, and the unfortunate middle of the animal is twisted like a corkscrew. As a matter of fact, I personally regard it as a stroke of luck that this is the case at present: it prevents us making too egregious asses of ourselves in a very critical phase of international relations. But you can see that the point of view has its dangers.

I am afraid it has taken rather a long time to elaborate this preamble about rationality and good feeling, but it is essential to my argument. I must now draw closer to the problem of war. I have said that this is a mad world, that man is most of the time mad, and I believe that in a way what we call normality is merely a form of madness which happens to be a working adaptation to existing circumstances. So it is not really so surprising when man indulges in extensive and prolonged attacks of madness which go by the name of war. But this you will no doubt say is not quite good enough. You will naturally wish to know more about this madness. The simplest way of stating the situation is to say that there is method in the madness. Man's most peculiar conduct is dictated by mental defences. He has added to the automatic responses which we observe in animals and which we are accustomed to talk of as reflex or instinctual reactions. These new defences are very vigorous; they act almost automatically like reflex actions, but are nevertheless mental products. For this reason, although they have advantages over true reflex systems of defence, they are subject to even graver error. When we observe the cat taking to flight from a dog, or a hedgehog curling up into a ball, or an amoeba withdrawing its pseudopodia from a negative chemical stimulus the behavior seems admirably adapted, and if the organisms in question were human we should doubtless congratulate them on their common sense. Of course if we conditioned a dog so that it ran away on hearing the dinner bell, this would obviously be a disadvantage for the dog. It would certainly be inconvenient if we conditioned a cat so that whenever it ought to fly from danger it flew into it. And it would be most disadvantageous if any animal were so conditioned that whenever it felt upset, it dashed into a safe situation and converted it

into a dangerous one. This is roughly what happens during the operation of that ancient mental mechanism which goes by the name of projection. The essence of projection is the capacity to attribute to external objects impulses which exist in ourselves. Obviously we cannot play this trick on the self-preservative impulse: if we are hungry and wish to eat two poached eggs we do not stop to suggest that the poached eggs are eyeing us malignantly, or that if we don't mash them up they will end by eating us. But we do say very frequently that people love us when in fact it is we alone who love them. Still more frequently we say that people hate us when in fact it is we who hate them. And when we are convinced that people hate us we are more than liable to attack them. Projection is an unconscious mechanism which comes into operation practically from the time we first draw breath. It is really a form of denial—an attempt to master disturbing hate impulses by saying that they exist outside ourselves. So that when we are in a potentially dangerous state of emotion we feel that others are dangerous to us. Having arrived at this false conclusion, we are faced with a decision of crucial importance: Should we take to flight from the danger or attack the danger? Now projection followed by flight is harmless enough, but projection followed by attack can be one of the most disastrous of human reactions. It has left a trail of persecution, torture, bloodshed, and decimation throughout the history of mankind. And however much man may have inhibited his primitive mechanisms, projection still exacts a heavy toll in the forms of political persecution, subjection of weaker groups, crime, the punishment of crime, and finally war.

In these days it has become the custom to say that there are no advantages to either victor or vanquished in the outbreak of war. This is much too simple a view. The whole civilization of mankind depended on his developing means of sustaining the frustration of impulse without having recourse to simple reflex adaptations. The capacity to endure delay distinguishes man from the animals. In particular the mastery of his hate impulses added enormously to his chances of survival. It is obvious that a small human group in which the hate and fear arising out of family sexual drives (the hatred between generations and between males of the same generation) could be controlled, would have more chance of survival than a group in which they gained automatic expression. In these early phases of mental evolution, projection had the virtue of turning the

aggressive impulses of the individual on to common enemies. And at the present day it is clear that given a good object of common hatred the friendly bonds between members of the hating group are immeasurably strengthened. I would instance here the feelings prevailing during the 1914 outbreak and the union of heterogeneous elements in 1935 inspired by the common aim of aggressive pacifism. Projection is thus one of the main factors in war preparedness.

But you will no doubt say this is surely applying abnormal psychology to the normal: this projection you speak of is surely a form of madness. And it is quite true that some forms of madness (persecutory insanity, for example) depend mainly on this one mechanism. But we must remember that in most essential respects madness is merely normality seen through a magnifying lens. Projection is part of the mental heritage of man. The infant seized of a colic kicks the empty air: the nursling picking itself up from a fall seeks to kick or scratch its nurse, the little boy attributes the loss of a ball to a malevolent interference of God, the adolescent transmutes his own hatred of the old into a grievance that the old stand in his light, the reformer looks for and finds evil in every quarter of the globe.

I was about to add that the pacifist discovers his internal enemies in the shape of external aggressor nations, but that would be to let him off too lightly. Before understanding his remarkable mentality we must retrace our steps a little. I have suggested that projection is a step towards civilization. But if this were the only step it would obviously be a civilization with one half of the population running away from their own shadows, and the other half occupied crushing the skulls of their imagined enemies with flint axes. Luckily, or if you are consumed with admiration of the nobility of animals, unluckily man developed along with his talent for projection a remarkable capacity to digest his thwarted instinct tensions. It would take too long and be absurdly technical to describe all the factors in this process. But we can indicate the situation by saying that man achieved the apparently impossible by developing a system of turning his aggressive instincts against themselves. Naturally this was done at a cost. And the cost was a splitting of his unconscious personality together with a division of his mental energies. No matter how integrated and stable we may appear to ourselves or to others all of us carry this unconscious splitting to our graves. One part of the mind is busily engaged using up aggressive energies, observing, scrutinizing, criticizing and punishing those other parts of the mind

which it holds to be either weak or evil. At the dictates of this remarkable institution, which we may call unconscious conscience, the ego builds up a number of reaction barriers against instinct. These make us under ordinary circumstances comparatively social creatures.

I hope I have been able to suggest to you how essentially peculiar and uncontrollable are the primitive reactions on which our mental development or civilization is founded. Our minds at the core are constantly preoccupied with problems of instinct tension, particularly those impulses for which no direct outlet can be obtained. Among these come preëminently the feral impulses of destruction which no known world can satisfy. At this remote center of affairs, the psyche moves with a pendulum swing between the madness of projection and the fantastic tricks of introversion. And except during moments when strong impulses of love, hate, or self-preservation are being directly and amply gratified in the way an animal would gratify them, man never ceases to use these primal unconscious mechanisms day and night; over the most trivial detail of daily conduct, in the midst of the most momentous crises, he continues to exercise mental activities which were acquired during his first painful emergence from animal organization.

Before going further I ought to remind you that the story of man's unconscious development is not exhausted by describing one of the deepest layers of his mind. Before applying technical discoveries to a specific problem such as the problem of war we ought really to survey the whole history of modifications of instinct and the detailed development of defensive barriers in the Ego. For example, the development of a mechanism called displacement is of the utmost consequence for war and peace attitudes. For on this one mechanism depends our capacity to transfer unconscious love and hate from old family objects to situations in the real world. It is clear that our degree of responsibility for or sympathy with the Abyssinians depends on the psychic distance of our love and hate displacements. And the same may be said of half-a-dozen other unconscious mechanisms such as repression, various types of unconscious identification, to say nothing of the sublimation of instincts. But I may remind you that in my view the ideal approach to any important problem is from within outwards. Already our first step in this direction has given us a sufficiency of problems. I should like to add that in emphasizing the egocentric aspects of these primitive mechanisms I

have neglected the altruistic or more idealistic side of the story. But although I have neglected them in the present context, that does not mean that they are without significance. On the contrary, if the moment were appropriate I would be ready to maintain that if we could not project we would lose half our existing contact with the world, that without projection there would be no science, philosophy, art, or religion. And the same can be said of every unconscious mechanism. However primitive it may be, it contributes materially to the structure of civilization. The trouble about these unconscious mechanisms is in the first place that they may function in excess and thereby defeat their own ends, and in the second that being unconscious they are in ordinary circumstances uncontrollable. In any case I am not sure that the psychologist is the best person to expound the more idealized aspects of primitive function. I would prefer to leave the task to some poet. Although the true poet is more or less intuitively a psychologist, few psychologists are true poets.

But I must not delay any longer the task of applying to the problem of war the few psychological observations I have put before you. I wonder, however, how many of you realize that there can be *no* explanation of war or peace which is not psychological. The most crassly materialistic interpretation of war is nothing more than a psychological theory in disguise. When, for example, a politician holds that war is due to economic factors operating through a capitalist, or as the case may be, a chauvinist organization, he is talking psychology. He is talking psychology without knowing it, as M. Jourdain talked prose without knowing it. He implies that aggressiveness or destructiveness is the reaction to any threat to the impulses of self-preservation. Without knowing, he has supported the view that aggressiveness is not in itself a primary instinct but a reaction phenomenon. He permits himself in this way to be unwittingly dogmatic about a problem which has sometimes puzzled the most erudite and highly trained psychologists. Of course the politician may be right, many intuitive psychologists are right. The most obvious reason is not inevitably wrong. All we can say is that if he is right he has left behind a number of unsolved problems. What, for example, is the explanation of a capitalist organization or for that matter a chauvinist organization? To which our politician will usually reply "Greed," and once more a psychological battle will be engaged.

I mention these points lest you should experience a natural antagonism to psychological explanations of war. Also to lead up to one of the major conclusions I wish to present. For if we agree that the mechanism of projection plays an important part in war-readiness we must abandon what appears to be quite a commonsense view. If man has the habit of projecting his aggressiveness onto external objects he does so because he must ease the tension of his own aggressiveness. In other words, he is defending himself against his own aggression. If he projects and then attacks an external object he is still defending himself. In short, it is not so much his aggressiveness that makes him aggressive but his defences against aggressiveness. This may seem to you absurd, but nevertheless it might well explain why people who know nothing about either Italy or Abyssinia are ready to feel aggressive towards the Italians and in their aggressiveness provoke an open combat with Italy. The conduct of the Italians is a God-send to them. It is a God-send because it appears to be convincing evidence of what unconsciously they are trying their utmost to believe, that their own aggressiveness is not their own but exists without. Given this conviction, the way is open for active ventilation of disapproval and aggressiveness. It becomes a positive virtue to disapprove of the Italians and without investigating the matter further to start *doing* something. Or at any rate if not doing something, getting others to do something, instigating a group of allies to impose oil sanctions for example. To repeat this view in more formal terms, war is a spontaneous form of mental defence, and defends mainly against the individual destructive instincts of man. It has had survival value, and despite all commonsense arguments to the contrary, must still retain psychological value. In this connection we must remember that deep down in the unconscious there is no death. It may be true that many of those who have directly or indirectly contributed towards bringing about a war may be killed in that war or die during the war. But that is no deterrent for the unconscious. The unconscious initiates conduct to produce relief from tension without paying any heed to the more commonsense claims of the conscious Ego.

Now you may say: This is all very well, but because the unconscious frequently flouts commonsense that does not justify you in flouting commonsense, and in the case of war causation it is only commonsense to take commonsense causes first. To this I reply: With all my heart. Don't let us neglect to estimate any factor in

war causation. By all means let us be empirical. But are we in fact empirical in attitude? There is little evidence of it. On the contrary, we find a variety of schools of opinion pinning their faith to a number of distinct theories of war causation which they expound with an almost religious enthusiasm. As a result, they have a partiality for their own remedies, although, as we have seen recently, they are ready to merge some of these differences when there appears to be some chance of striking a blow at a common enemy. Occasionally it is true they may pause to render lip-service to some psychological factor in war causation. It is not unknown for a foreign secretary to say that of course aggressiveness in nations is due to fear. But in practically no quarter do we find any inclination to take such a pronouncement seriously, to treat an outbreak of aggressiveness in a nation as a sign of need. On the contrary, if we are to judge by recent events it would seem that our amateur social psychologists, by which I mean politicians and pacifists, are ready to repeat in the sphere of group psychology all the blunders which man has committed through centuries of trial and error in individual psychology. I would instance here the barely concealed intention of making Italy kiss the rod like a naughty boy. The aggressor must be shown that it does not pay. The phrase might have come from the lips of a nineteenth-century magistrate.

Let me give you another illustration of what I have called the absence of a scientific empiricism in the investigation of war. Suppose that a Society for the Prevention of Outbreaks of Cholera thought it worth while to discover what precautions the population of any country would be ready to carry out in the event of an outbreak. Imagine that they drew up and distributed a table of five questions to which the answer Yes or No was requested. Suppose further that the questions were not capable of being answered in this simple fashion, but that nevertheless amateur returning officers were appointed for the purpose of persuading people to vote and to vote on the side the returning officers favored. Suppose still further that amplifying statements were distributed by which the opinion of individuals could be influenced or that it was subtly implied that refusal to answer in the way the returning officer wished stamped the recalcitrant as ethically undesirable. What possible scientific value would this remarkable Cholera Ballot have? I have no hesitation in saying that it would have none whatever. The only legitimate conclusion one could draw is that under the influence of moral suasion man is

extremely cowardly. And that of course would be no new conclusion. In the same way it is clear that the result of the Peace Ballot was a tribute to the moral suggestibility of the Englishman, but, as I have suggested, the Englishman has already an international reputation for moral rectitude. As a piece of sociological investigation the Peace Ballot verges on the comic if not indeed on the reprehensible. It showed a complete lack of regard for the decencies of scientific research. And had it not been for the rather cynical realism of European diplomats it might well have had dangerous consequences. Fortunately, it has done nothing more than mislead our own English government to a slight extent. And our own government is no doubt sufficiently woolly minded on ethical issues to mislead itself.

At the same time manifestations of this sort are so remarkable and so full of potential danger to society that they call urgently for investigation. The time is past when we can satisfy our disapproval of war phenomena by putting the militarist or the armament manufacturer in the pillory. Some years ago I prophesied that the next war of any consequence to civilization would be caused by pacifist activities, and though you may not agree with me that this prophecy was all but fulfilled last autumn, you will at least agree that the activity of pacifist movements is at the moment a factor in war-readiness. Now let us see how far our study of early layers of mental development throws light on this problem. You will remember that next to projection the most effective way of controlling aggressiveness was to use it up on the self. By dividing his energies man was better able to inhibit them. From this one is entitled to conclude that the forces which activate pacifism have the same sources as the forces which activate war movements. You may remark that it does not matter very much what their source is so long as they are effectively controlled. And of course I agree entirely. I added, however, that in most people the two mechanisms, namely, projecting impulses on others and turning them in on the self, were complementary. That the mind swings back and forward between two systems. It follows then that what we regard in ourselves as a stable attitude of good will and peaceableness may not be quite so solid as it appears. It is actually a balance, a surplus or margin if you like. Curiously enough, if the surplus is reasonably large the individual tends to be easy in his personal relations, to disapprove of war but not to be very actively interested in its prevention. The position of the active

pacifist is somewhat different. On the one hand he may have dealt so effectively with his own unconscious aggression, and have such an active surplus of virtue in hand, that he can afford to be busy in war prevention without having any psychological axe to grind. But we cannot be certain of this. His surplus drive against aggression may on the other hand be a weak one. He may still be afraid of his unconscious aggression, in which case he will be very busy in war prevention but always with an axe of his own to grind. How are we to distinguish between these types? The answer is quite simple. We distinguish between them by assessing the amount of objectivity they bring to their self-appointed task. And, in general, when a pacifist is aggressively anti-aggressive, fanatically so, with overwhelming convictions as to the rightness of his theories, and in particular with a feeling of uplift and self-satisfaction in his work, we may suspect that he is in difficulty with his own instincts. He is still dealing with his own aggression by projection. He has an enemy to attack, but that enemy is now war. It is this type which is the greatest potential danger to society. For on the strength of his good faith he will expect to be excused scrutiny. Not only so, he will expect us to accept his panaceas as further evidence of virtue. And all the time he may be secretly driving himself and everyone else towards a war conflagration.

I am acutely aware that in these scattered reflections I have not been able to do justice to a problem of supreme importance to mankind. I am all the more anxious therefore to convince you that these are but a few of the innumerable factors to be taken into account. In support of this view may I conclude by referring to two other points selected at random? Pacifists have often deplored the tendency to idealize the virtues brought out under conditions of war, and have treated with scorn any attempt to justify war on such a ground. They have suggested that this is a pernicious example of myth-building. Now the psycho-analyst, too, is interested in myth formation. He believes it to be a constant tendency on the part of mankind, due partly to the need for compensation and partly to unconscious phantasy. But warlike myths are nowadays innocent diversions compared with the myths that are built around pacifist efforts. Perhaps the simplest example is to be found in the cartoons of Low of the *Evening Standard,* when he comments on the activities of the League of Nations. To represent a committee of somewhat fly-blown foreign secretaries as a beautiful lady with bare feet is an

exact example of myth formation. It is seen in a more direct form in publications like Headway, and in the sermons of some divines in which this committee is identified with God. I need scarcely emphasize the dangers of this form of activity, based as it is on two assumptions that have not yet been proved, viz., that the League of Nations is any more than a cover for the self-interest of its most powerful members, and that it has promoted the cause of peace. But there is another aspect of this activity to which I would draw your attention. Scientific assessment of the activities of the League of Nations has been cramped by the development of a social ethic which corresponds to one existing in the case of individual man. In the case of individual man it is felt to be bad taste if not positively immoral to question the function of conscience. Yet if one finding of individual psychology is better founded than any other it is that an exaggerated drive of conscience can poison a man's relations with the external world and with himself. It can in the long run make him commit either murder or suicide or both. And there is no reason to suppose that the same is not true of social manifestations. Even if the League of Nations is the repository of an international conscience, a matter which is open to serious question from a dozen sides, it is still possible for it to behave in an obsessive way and with a blind eye to realities. In the meantime it provides a constant temptation to the weakest of all human types, the man who, guilty in his secret heart, upholds with passion the need for world rectitude. Whoever has the interests of peace at heart should see to it that the pacifist movement is purged of all special pleaders who to gain inner peace of mind would not hesitate to jeopardize the future generation.

DYNAMICS OF THE GESTALT PSYCHOLOGY
PART II

WILLIAM McDOUGALL
Duke University

Koffka's treatment of dynamic problems differs from Köhler's chiefly in that, while Köhler frankly offers his dynamic explanations in terms of a very hypothetical physical chemistry of the brain, using the data of "direct experience" merely as indicators of the physico-chemical processes in the brain, Koffka, on the other hand, asserting that "our physiological field is a totally unknown quantity" states his dynamics in terms of direct experiences. Nevertheless, he desires to model his explanations of all psychological events upon contemporary physics. Physics, in order to explain any event, seeks always to describe a field of forces, a "definitely distributed system of strains and stresses, gravitational and electromagnetic, which determines the very geometry of space . . . and what a body of given constitution will do in that environment."[1] Hence, he says, we must devise a corresponding psychological field of forces containing bodies which are moved hither and thither in that field by the forces and undergo other changes under their influence.[2]

The first step towards the execution of this program is to devise or define a *psychological field* (equivalent to or analogous to a field of physical bodies and forces); which field "is to be our fundamental explanatory category."

I proceed with great circumspection to attempt to define concisely Koffka's psychological field, a task which his book nowhere attempts. The reader who is sufficiently interested to desire to know what this

[1] So at least Koffka asserts and seems to believe. He seems to forget that some physicists deride forces as outmoded abstractions or even as pernicious fictions, while others are equally contemptuous of bodies.

[2] "Can we introduce the field concept into psychology, meaning by it a system of stresses and strains which will determine real behaviour?" (*Principles of Gestalt Psychology*, London and New York, 1935, p. 42). This large book (to which all other page citations refer) of more than 300,000 words is of great importance as representing the first attempt to set forth Gestalt psychology as a complete system of psychology.

"fundamental explanatory category" includes is left to piece together an answer as best he may.

First, it seems clear that it includes all *direct experiences,*[8] but whether it comprises other constituents, and which of its contents are bodies and which forces, are questions to which answers are not easily to be found in Koffka's pages.

Two principal parts of the psychological field are distinguished, namely, the Ego and the *behavioural environment;* but whether these two parts together make up the whole psychological field I have not been able to ascertain. The earlier half of the book is mainly concerned with the behavioural environment, and it is very necessary to discover what exactly Koffka means by this term. We are told that, "behaviour must be explained by behavioural environment" (p. 43). Yet there are "forces that determine behaviour outside of behavioural environment" (p. 50); and there is even "a type of behaviour which takes place without a behavioural environment" (p. 51).

It is easy for the reader to suppose that the *behavioural environment* is all that part of the geographical or physical environment of which the organism is cognizant at the moment of behaving. For: "My behavioural environment is the environment of me and my behaviour" (p. 39). But that would be a grave error. Roughly, Koffka's *behavioural environment* corresponds to Köhler's *sensory field.* The behavioural environment is said to depend upon the geographical environment and is even said to be caused by the latter. Our task is greatly complicated by the fact that Koffka makes frequent use of the terms *environmental field* and *behavioural field;* and the unfortunate reader is reduced to a condition of exhaustion and despair by the effort to discover whether these three are synonymous terms. If he could validly assume such equivalence his task would be greatly simplified. But he cannot; for "the behavioural environment is at best the counterpart of only a fraction of the total active environmental field" (p. 69).

Perhaps the environmental field is part of the geographical field! But no—that cannot be; for the former "owes its existence to the affection of our sense organs" (p. 74).

Then again there is a *psycho-physical field,* as well as a *physiological field.* There is also a *behavioural surrounding,* which is said to "present us with a motley of data." And still again there is a

[8] This term Koffka takes over from Köhler, stating that it is "fully equivalent with consciousness" (p. 35).

behavioural world. All of these add greatly to the reader's difficulties.

Amidst all this uncertainty as to the relations of the three terms, *behavioural environment, behavioural field,* and *environmental field,* I am going with much trepidation to plunge for the view that the first and second are synonymous, and, wherever possible, shall use henceforth *behavioural field* as less confusing than *behavioural environment.* While as to the meaning of *environmental field* (and also *psycho-physical field*) I frankly declare myself beaten.[4]

The Behavioural Field

The *behavioural field or environment,* then, is that part of the psychological field which is directly concerned with, and in part caused by, the impressions received from the geographical environment. It includes, for example, not only the awareness of what are commonly called objects and events of the geographical environment, of their shapes, sizes, colors, and all other physical properties and relations, but also awareness of what have been called their tertiary qualities—aesthetic, moral, and emotional qualities. For example, if you see an angry sunset, your awareness of its angry quality is a feature of your *behavioural field.*

Each such cognition, such awareness of an object, is, strangely enough, spoken of as a "thing" in the behavioural field; a *façon de parler* strongly reminiscent of the re-ification of "ideas," *Vorstellungen* or presentations, in the association and Herbartian psychologies. The nature of the *things* of the behavioural field is further illuminated by the statement that there are "three main characteristics of things, viz., shape, boundedness, dynamic properties and constancy" (p. 304). These *things* are also called "phenomenal objects," and are said to be impenetrable, to resist distortions, and to have inertia; also they "have autochthonously characteristics similar to real things [physical things]" (p. 305).[5]

Remembering that the field is to consist of things and forces, we ask next—What and whence are the forces of the *behavioural field?* We find that the forces originate in the "bodies" or "things" which occur in it. "Our behavioural environments contain things and the

[4] Let no one suppose this is a question of no importance; for all three terms are used many times. While the behavioural environment has to explain behaviour, the relation between the behavioural field and the physiological field is said to be crucial.

[5] To justify these assertions the principle of *isomorphism* is invoked. I postpone consideration of it to a later page.

holes between them. As a rule, the forces which regulate our behaviour originate in the former and not the latter" (p. 44). But these forces originating in the "things" of the *behavioural field* do not suffice to explain all behaviour.[6] "The totality of our behaviour is not explainable in terms of the behavioural environment. There are at least three different types of behaviour for which no proper behavioural environment can be found" (p. 50), namely, (1) reflexes; (2) behaviour determined by forces "outside of behavioural environment" (whether these are the ego-forces and the ego-environment forces introduced to the scheme in later chapters I have not been able to ascertain); (3) "Memory determines to a great extent our behavioural field." But skill is an expression of "memory effects that fall outside the scope of behaviour environment." And there are other such effects, as when, some little time after vainly striving to recall a name, "suddenly the name will appear [appear, I suppose, as a thing in the behavioural field]. Again a type of behaviour which takes place without a behavioural environment but must, nevertheless, be the result of operative forces, a field process" (p. 51).

We have still to inquire—Are the forces of the behavioural field, those which originate in its *things,* experienced forces? Here I must remark that, while it is one of Köhler's virtues that he recognizes conative experience, however vaguely, under his term "attitudes," it is not clear to me that Koffka anywhere recognizes immediate conative experience. He does, in one passage, imply that we become conscious of forces of the behavioural field. "Must we not say that as some spatial stimulus distributions provide various shapes, and some spatio-temporal ones the experience of motion, so will others arouse the perception of force and causation" (p. 379). But such perception of force and causation is hardly identical with immediate conative experience, the experience of striving, of exerting force, which, in my view, is the most central of all experiences, and the ground of all belief in self and in forces and causation, a type of experience without which such words as force and causation would have no meaning.[7] Of such "perception of force and causation" as Koffka describes, we have to ask in terms of his own prin-

[6] If it were so, the scheme would closely resemble Herbart's, in which "ideas" exerting forces upon one another were the leading figures; for, as we have noted, the *things* of the behavioural field bear a remarkable resemblance to the ideas, presentations, *Vorstellungen,* of Herbert and the associationists.

[7] See my *Frontiers of Psychology* (London and New York, 1935).

ciples—What are the forces and causes which "arouse" or "produce" these perceptions of forces and causations?

It is remarkable that the question of the source or seat of liberation of energies concerned in the processes of the behavioural field is nowhere raised. We are left to suppose that each *thing* contains its own reserve of energy ready to be contributed to the common field.

Koffka, having set up his behavioural field, devotes a large part of his book to discussing this part of the total field, its changes and forces considered apart from the influence of the forces of his other two classes. He sets out to discover "the forces which organize our environmental field into separate objects," Köhler's segregated wholes, the *things* of the *behavioural field*. In all this part Koffka, like Köhler in the earlier part of his book, is concerned to give the largest possible rôle to dynamical self-distribution of neural energies as over against pre-formed structure. But the latter, inherited and acquired, is recognized as providing "conditions which will be of the constraining and insulating sort; they will favour certain interdependencies rather than others, confine processes totally or preponderantly to certain parts of the system, co-determine the direction which the forces will take and so forth."

All this constitutes, as compared with Köhler's treatment of the sensory field, a handsome recognition of the importance of neural structure: for in reading Köhler's account one is led almost to suppose that he regards the brain as a homogeneous jelly, a structureless parenchyma, such as Lotze assumed the seat of the soul to be, subject to complex vibrations or forces communicated to it by a multitude of afferent paths. Concisely, the difference of treatment is that, while Köhler is wholly concerned with dynamical self-distributions, Koffka takes into account constraining conditions also, seeks to construct "a thoroughly dynamic theory in which the processes organize themselves under the prevailing dynamic and constraining conditions."

Attention and Perception

In all this part, there is, I judge, much that is true and important. I will make one critical comment only, but that an important one.

Segregated wholes are alleged to be formed in the sensory field by forces or stresses "entirely limited to the sensory field"; and it is implied that the formation of *things* or *objects* in the behavioural field has consequences in the way of innervation. Accommodation

and covergence of the eyes, for example, are thus caused and regulated; such a movement "is started and regulated by this field-stress, and has nothing to do with Ego."

Now the Ego, with the forces peculiar to it, is, we are told, the source of all attention; and attention is a force which starts in the Ego, and may add energy to parts of the field (p. 206). At this point I am not concerned with this questionable doctrine of the Ego at the sole source of all attention or conation. I desire, rather, to draw attention to the view (not explicitly asserted by Koffka but clearly implied in his statements) that perception of objects takes place without attention or conation; and to question this view. Following Stout, I have argued (in my *Outline* and elsewhere) that there is no perception without some degree of attention, and that attention is conation working in the cognitive field.

Koffka's chosen illustration of the way in which forces of the behavioural or sensory field cause accommodation and convergence lends itself very well to illustrate my point. Suppose you stand close to the window-pane, staring vacantly into a blue sky, while you ponder some remote problem, or merely indulge in day-dreaming. A fly on the window-pane is imaged on disparate points of your two retinas; for your visual axes are parallel. Suddenly the fly moves, and, in doing so, draws your attention. At that moment (unless you make a counteracting effort) your eyes converge upon, and your lenses and pupils accommodate to, the moving fly; and at the same time you perceive this object of which up to that moment you have remained unaware.

This instance seems to illustrate a perfectly general law of accommodation and convergence. At any moment as you look out on a varied prospect, say an ordinary furnished room, many objects are casting images on disparate points of the two retinas, without appreciably influencing convergence or accommodation; yet convergence and accommodation are perpetually adjusted and readjusted to whatever object we strive to discern, discriminate, recognize or in any way perceive—a fly darting to and fro, a smoke-ring floating across the field, a butterfly or a bird on the wing. Do not facts of this order refute Koffka's doctrine in its chosen application and enforce the truth of the view that perception is conative? Are we not justified in asserting—no perception without attention; no innervation (at least of a nicely adaptive kind) without conative striving towards a goal (if only the goal of fuller cognition). Without

conation (attention) the mere stresses of the sensory field can achieve very little, it would seem.

The Ego and Its Forces

The other principal part of the psychological field is the Ego. The Ego, it would seem, is a *thing* of the psychological field comparable to the *things* of the behavioural field; like those things it is formed through sense-experiences, all sense-impressions of the body, whether visual, tactual, kinesthetic, or coenesthetic co-operating. And as from each *thing* of the behavioural field forces originate which organize the field and determine behaviour, so also the Ego, once formed by the segregation of a multitude of such sensory experiences, becomes a reservoir of energies, a center from which many powerful forces radiate, forces which can modify the total field, including its behavioural part, and also play the leading rôle in determining behaviour.

These forces of the ego are described as falling into two classes, the intra-ego forces and the ego-environmental forces; and the forces of these two classes are identical, I presume, with the forces briefly mentioned in the earlier part of the book as being "outside of behavioural environment." I have failed to discover what are the differences between the two classes of ego-forces. I shall, therefore, refer to them indiscriminately as ego-forces. It seems clear that the ego-forces of Koffka are the equivalents of all the *directed attitudes* of Köhler, all the forces he describes as originating in parts of the nervous system other than the sensory field.

Here we must notice an important difference. Whereas Köhler, as we have seen, recognizes the reality and functional importance of conative experience—if only implicitly—the same cannot be said of Koffka. Just as conative experience seems to have no place in his behavioural field, so also it seems to be unrecognized as a part or aspect of the Ego. The Ego is a segregated part of the psychological field, a Gestalt (a segregated whole of the sensory field, in Köhler's terminology) and it would seem that it differs not at all from the *things* of the behavioural field, except in that its sensory basis is very wide, its sensory constituents are very many, and its segregation more complete than that of the *things* of the behavioural field.[8]

[8] On the segregation of the Ego I remark that, while Köhler makes segregation always an affair of dynamical self-distribution, Koffka, in the case of the Ego, postulates a membrane which holds the Ego system together; but, of course, the membrane may be the product of self-distributing forces (p. 325). This is in

It might be supposed that emotional experiences would be distinctive constituents of the Ego. But, as we have seen, some emotions belong to the behavioural field; the common assumption that emotion is essentially subjective being repudiated.[9]

What then are the intra-ego-forces and the Ego-environmental forces? In relation to them Koffka writes: "All action as a change of the pre-existing state requires forces to set it going, and so the question as to the nature of these forces has to be raised" (p. 333). Also we have previously learned that "we must show that the forces which connect the Ego with the other field parts are of the same nature as those between different parts of the environmental field" (p. 67).

In the endeavour to hunt down Koffka's answer to this all-important question, I note that the Ego "contains more central parts" which constitute *the Self*. The Ego contains various sub-systems, among which one, more permanent than the rest, is "the Self, whose tensions are much greater than those of the other sub-systems, representing real needs as opposed to the quasi-needs of our superficial intentions" (p. 342). Here we seem to strike the first clue to the answer. Clearly, we must keep an eye open for tensions of ego-systems and for real needs.

Next (p. 355) we come upon mention of instincts and a very concise but fair statement of my view of instinct, followed by: "We can easily avoid the disputable term instinct and yet retain the gist of this [McDougall's] theory." But this line is dropped after a few remarks which suggest that needs are perhaps identical with instincts. For Koffka, since the time when he wrote at some length about "instincts" in his earlier book,[10] in a manner entirely in line with my treatment (or theory as he calls it) has learned that "instinct" is subject to a very rigid taboo among American psychologists.

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accordance with Koffka's general tendency to recognize "constraining conditions" as co-determinants of organization. "We must assume the Ego to be a particular field part in constant interaction with the rest of the field." But, we have "no real knowledge of the forces which keep the Ego unified and segregated from the rest (of the field)." Hence the need for a containing membrane.

[9] "It was never claimed [by Koffka] that emotions were always characters of external environmental behavioural objects. But as little was it claimed that they were *always* Ego-related, and the fact that they are in some, or in a great many, cases nowise proves that they are so in all. Therefore it seems much more natural to say that emotions may be carried by (behavioural) objects as well as by myself, that they may enter other organized units as well as that unit which we call the Ego" (p. 326).

[10] *The Growth of the Mind* (New York, 1924).

Forty pages later, and before we strike upon any further light on tensions and needs, we come upon *attitudes;* and remembering that for Köhler all forces, other than those directly arising in the sensory field, all conative forces which prompt and sustain action, are attitudes, our hopes are raised. We read: "We mean by them [attitudes] actual *forces* that participate in the total dynamic situation, actual forces that exist between the field and the Ego." And "surely, in many cases these attitudes originate in the Ego, its needs or quasi-needs" (p. 395). Attitudes then are forces which originate in the needs and quasi-needs of the Ego. There follow a few pages on the influence of attitudes on field organization, an influence, "which may overcome contrary forces of internal organization. . . . Since attitudes themselves may vary enormously, the possibility of changes produced in the field by attitudes is practically unlimited" (p. 400).

Remembering that for Köhler emotions are attitudes, and forgetting for the moment that (for Koffka) some emotions belong to objects of the behavioural field, we pass to the immediately following section of fifteen pages devoted to emotions, with the hope that we are drawing near our goal, are hot on the scent of the Ego-forces.

Koffka on Emotions

First, emotions are not things. "Emotions cannot be treated adequately with the thing category. We cannot take them and cut them to pieces to see what they consist of. Again we are in full agreement with McDougall" (p. 401). Secondly, "We see at once that, at least to some extent, the emotional aspect of behaviour is a manifest aspect of organization. . . . Subjective feeling and objective observation of behaviour or of physiological symptoms are in the best possible agreement. This is fundamental to our theory of the emotions. . . . Thus the manifest aspect of emotion may not only reveal the degree and kind of tension that exists in the psychophysical field, but also its direction." This, of course, is again, as Koffka recognizes, in agreement with the view which is peculiarly my own, since no writer seems to have pointed to this self-cognitive function of the emotions before me. He goes on: "This fact has been clearly recognized by McDougall, who made it the cornerstone of his theory of emotions" (p. 403). And it is, as we have seen, of the essence of Köhler's doctrine of insight and of manifest or non-silent organization.

Koffka proceeds to cite a passage in which I have insisted on that intimacy between directed impulses and emotional qualities which is of the essence of my theory of emotions and which Köhler, as we have seen, also insists upon. Koffka adds: "These quotations reveal a fundamental agreement with the position we have so far taken." At this point it seems as though Koffka were about to declare himself, like Köhler, a supporter of the hormic principle; but he proceeds to reveal a fundamental divergence from Köhler and myself.

For, in the next sentence, Koffka adds: "This agreement, I should like to say, does not result from the general fact that McDougall's principles are the same as ours. McDougall published the fundamentals of his theory in his *Introduction to Social Psychology* (1908) long before gestalt psychology existed, and gestalt psychology, on the other hand, is in its systematic aspect different, and in many respects even fundmentally different, from McDougall's general theoretical position" (p. 403).

Koffka is bound to insist on such difference, else he would have to revoke much of the claim of the G. P.[10a] to be altogether new and distinctive. What then are these fundamental differences? Koffka proceeds immediately to define at least one such difference. It is that, not only do I relate emotion to impulse in the most intimate fashion (as Köhler also does) but also I regard the fundamental primary impulses (and hence also their intimately related emotional qualities) as instinctive, regard them, that is to say, as springing from (or originating in) dispositions that are part of the constitution of the species *Homo*. This is the part of my hormic theory which Köhler accepts by implication and which Koffka explicitly repudiates with almost pious horror (so thoroughly Americanized has he become by his years of residence at Smith College).

He writes: "It is at this point that we cannot follow McDougall any longer; in fact, he seems to me here to have fallen to some extent into the error which he has criticized with great discrimination in many other cases, the error, namely, of re-ification. For the instinct as a disposition is, after all, a lasting entity, something of the nature of a thing. Surely McDougall's conception is not as crude as all that, but the definition of instinct as innate disposition runs at least the great risk of abandoning a truly dynamic interpretation of the forces actually at work at a given moment, and substituting for it an entity which achieves certain goals."

[10a] G. P. stands for Gestalt psychology; G. Ps., Gestalt psychologists.

On this I comment that I am not in the least shaken by this display of pious horror. I do most explicitly assert that the innate disposition from which the emotion-impulse originates or is evoked time after time upon perception of the appropriate object or situation does endure, though it also grows, matures, and changes like all other parts of the organism. It is, if you like, "a lasting entity, something of the nature of a thing." Why should Koffka find the assumption of such a disposition so reprehensible, when he himself describes as a thing the thinking of any object (which I should call a most illegitimate re-ification) and himself postulates a vast system of brain-traces (memory-traces) which endure indefinitely?

I will even assert that the absence of such enduring conative dispositions in the G. P. (Köhler's, Koffka's, and Lewin's alike)[11] is its principal defect; a defect, however, which (as we see from Köhler's treatment) is not in the least necessary to G. P., or implied by its principles, and one the remedy of which would bring G. P. at once into line with hormic psychology.

Koffka proceeds to state a second objection: "It is not true that any instinctive action carries the emotion corresponding to its instinct." He seeks to establish this objection by an argument which lacks all trace of logical cogency, as follows: McDougall asserts that the impulse to escape or withdraw which is generated by the escape-instinct is accompanied by the emotional quality of fear. But it happens that men sometimes withdraw from certain objects or escape from certain situations without any such emotional experience. Therefore McDougall's view is untenable. The argument would be cogent only if I had asserted that every withdrawal or escape is due to the impulse of the fear instinct. But I am in no way committed to any such absurd proposition. *Reculer pour mieux sauter* is a well-recognized principle of action; and such withdrawal may well be motivated by the aggressive impulse cunningly controlled in the light of experience and reason. Or, again, a common stratagem is to run away from an enemy in order to lure him into a less favorable position.

Koffka's third objection to my view of the emotions is that emotions sometimes belong to perceived objects, as when we see dead leaves fleeing before the tempest, leaves "hectic and pale and red"; and we cannot assert that such objective emotions accompany any

[11] We have seen that Köhler's few words about emotions do very clearly imply the reality of innate conative dispositions.

impulse of escape or flight. My answer is that the objection is absurd. And, moreover, when we thus poetically attribute emotion to the leaves, we do inevitably at the same time ascribe their motion to an impulse to flee—so constant is our experience of such impulse in the behavior of fear.

A fourth and last objection is found by Koffka in Dembo's experimental study of anger (to which Lewin also refers in the same sense, namely, as a refutation of my theory of emotions) which study he regards as supporting what he calls his dynamic theory of emotions, with the implication that my theory is non-dynamic. Now Dembo's account of the anger induced by her procedures does as a matter of fact fit perfectly well with my account of anger, namely, that it is evoked by obstruction offered to any strong impulse. It is true that Dembo offers a long-winded and purely fanciful explanation in terms of internal barriers. But it is one which leaves entirely unexplained the enormously significant fact that anger is recognizable as essentially the same emotion-impulse in all men and in many animals; one which, as Köhler truly says, has everywhere (in ape as in man) those peculiarities which enable us to recognize it as anger: "We become angry by immediate determination, and our anger is an attitude directed toward or against the obstacle," and "the tendency directly determined by anger [better, of anger] is attack or destruction."[11a] How should the anger-impulse in all men and all apes show such constancy in respect to the conditions which evoke it and the mode of its expression, unless it be true that it springs, always and only, from an enduring disposition, one which endures not only in the individual but also in the race, one which has been transmitted (like ten thousand other features of our constitution, the eye, the pineal gland, the heart, the appendix) through countless generations, undergoing only very gradual evolutionary changes?

Let me add at once that the lack of adequate recognition by Köhler and Koffka of enduring and innate dispositions accounts for an enormous hiatus in their account of human personality, namely, the absence of all account of the organization of our affective life, that organization which is the growth of the sentiments and the building of the system of sentiments which is character.

Koffka's reproach against my theory of the emotions to the effect that it is not dynamic, is wholly unfounded. It rests merely on

[11a] Cf. Part I of this article, *Character and Personality*, 1936, IV, 242.

the unwarranted assumption (frequently expressed by the G. Ps.) that only that psychology is dynamic which makes use of their own highly peculiar and somewhat fantastic phraseology.

The section on emotions is followed by one on will. Since here Koffka merely invokes Lewin's treatment, I postpone consideration of what he has to say on this head. I postpone, also (and for the same reason) consideration of Lewin's treatment of desire; for this also is dragged by Koffka into his own scheme, and left sticking out from it as an excrescence, like a fifth limb transplanted onto a newt: for Lewin's "dynamic" explanations of action are several degrees more remote from reality than Koffka's.

Koffka's Explanation of Behaviour Summarized

How then does Koffka explain behaviour? We have seen that his explanation is to be wholly in terms of the *psychological field.* The field we have found consists of *things* and of forces emanating from the things. Of the forces we know nothing. We merely assume that, in accordance with a general principle, wherever and whenever a change occurs in the field, some force or forces must have been at work; and, since we know of no other sources of energy, we assume that the forces must originate from the *things.* But what answer do we get, if in any actual case of adaptive action, we insist on the question—How does the field with its multitude of things and forces, bring about appropriate innervation of the muscles? We are offered merely one oft-repeated phrase: the field, we are told, *obtains control of the executive.* This one blanket phrase brushes away detailed knowledge of the nervous system, its structure and functions, gathered by the life-long labors of an army of men such as Hughlings Jackson, Head, Sherrington, Goltz, Flechzig, Flourens, Chareot, and Marie. The same answer to our question might well have been offered by Aristotle, who believed that the brain serves merely to cool the blood. It would almost seem that Koffka, when he writes: "Our knowledge of the nervous system is almost blank," is but writing literal truth about himself.

One might expect at least some intelligible definition of the *executive.* At first one supposes the word to be equivalent to *motorium,* to be a new name for the whole of the efferent side of the nervous system. But nothing so simple is meant. It does include all this, but much more also. "The executive comprises, then, all the ways in which action can relieve stresses or contribute to such

relief." And, since all solving of problems, or in my terminology, all attainment of goals, even of the purely mental type (such as the recollection of a forgotten name) are such relief-processes, the *executive* becomes equivalent to the total sum of all processes involved in attaining any and every goal. Substituting this explicative formula for the magic word *executive,* we have thus as the final outcome of Koffka's elaborate attempt at dynamic explanation of behaviour: the field determines behaviour by obtaining control of a process which leads to the attainment of the goal sought.

After this point the book is occupied mainly with some very interesting, ingenious, and courageous attempts to deal with the facts of memory in terms of cerebral traces, and with some scanty remarks on the problems of social psychology; but contains no further addition to the dynamic exposition.

It is noteworthy that, while throughout Koffka's huge book the words "forces," "stresses," "strains," and "tensions" occur with great frequency, there are but few references to energy. The fact reminds me again that many physicists regard forces as pernicious abstractions, while yet holding energy to be a very fundamental reality. I am not so puritanical about forces; I recognize that energy is also an abstraction, and that both abstractions may be useful enough to justify themselves.[12] But Koffka's intricate attempt raises the question whether we really stand to gain anything by such free inference of forces. We observe some change, and we infer the operation of some force, the cause of the observed change. But we know nothing more of the force. Unless we can in some way generalize about these inferred forces, and, by so doing, bring each particular case of change under some general law of forces, nothing is gained; and we do better to avoid the useless abstraction and to remain content with the description of the concrete changes.

Especially, it seems to me, we need to relate the forces to energies, to regard them as energies at work. If we can point to some source of energy; can indicate how active energy becomes liberated from such a reserve, and how it becomes directed to operate as a force producing changes, only then do we increase our understanding of the processes in organisms by use of the abstract terms "force" and "energy."

The search for energies and their sources, and for the processes of their liberation, is almost entirely neglected by Koffka; and the

[12] See my *Frontiers of Psychology* (London and New York, 1935).

same is true in hardly less degree of Köhler.[13] What little Koffka has to say can be summarized in a few words. Energy is liberated in variable quantities from the Ego system, from systems of the Ego in which tension exists and also from needs. But what these systems of the Ego may be and what needs may be—these questions remain in abysmal darkness. And it would seem that Koffka is inhibited from any inquiry into these questions, because such inquiry would inevitably lead him to the conception of enduring dispositions, and upon this, for some obscure reason unintelligible to me, he has placed a strict taboo.[14]

However, let us ask—What are *needs* conceived as sources of energy? It seems that needs "are . . . states of tension which persist until they are relieved" (p. 330). Some needs belong to the Ego system; but some belong to things of the behavioural field, as for example, "an incomplete figure pattern" (p. 327). In the last sentence we have the one solitary clue given us by Koffka to the question as to stores of energy whence arise the forces of the behavioural field. Every behavioural thing, it seems, so long as it is an incomplete Gestalt, has a need, the need to become completely gestalted; and each such need is a store of energy.

What then of the *needs* which belong to the Ego? Here we meet with the distinction of *real needs* and quasi-needs. The former belong, in the main, to the core of the Ego which is the Self. The tensions of the real needs of the Self "are much greater than those of the other sub-systems" (p. 342). I gather from this that the needs of the Ego are identical with its systems and sub-systems; further, it seems that the Self (the core of the Ego), consisting of needs or sub-systems, is enveloped by concentric layers of other needs or sub-systems (p. 342)—a sort of onion; and we must remember that the whole Ego is held together by a membrane.

How Koffka has discovered all these interesting topographical details of the structure of the Ego, we are not told. Nor is any light thrown on the processes by which sense-impressions reach those needs packed away in the core of the Ego to liberate their energies;

[13] I refer the reader to Köhler's definition of the task of psychology—cited on p. 236 of Part I of this article. It is wholly concerned with forces and not at all with energies.

[14] Remembering that the Ego, like the *things* of the behavioural field, is formed in each individual by the segregation of sensory experiences deriving from the body, one is led to wonder how mere segregated parts of the sensory field can evolve within themselves needs conceived as reservoirs of energy within which great tensions may arise.

nor on the other ways in which the energies liberated from them escape from the heart of this psychic onion, to do their essential work of gaining control of the executive, thus to succeed in satisfying the needs from which they have sprung.

I will only add—Does it not seem as though, after all, Koffka's Ego, or, at least, its core, the Self, consists partly of just such enduring dispositions as he finds so reprehensible in my system? For the Ego, we are told, is a permanent complex structure; and certain of its needs are states of tension which persist through long periods. "Our most general aims are therefore permanent tensions which last through great parts of our lives" (p. 330). Yet some needs which are quickly relieved, nevertheless, recur frequently. And how can we conceive such needs (needs which arise and disappear and reappear again and again through long periods of our lives) save as liberations of energy (tensions, if you prefer the term) within enduring dispositions which are stores of latent energy?

And, lastly, how can we doubt (I should say, perhaps, can any biologist doubt) that the *real needs* (call them Ego-sub-systems, or psychic onions, or conative dispositions or propensities) of each species are common to all members of that species, and far more characteristic of it than many of the bodily features? Consider how the *real needs* of all dogs remains almost exactly alike in spite of a vast diversity of bodily features!

If only the G. Ps. were not so resolutely blind to the world of biological fact and theory!

RECENT RESEARCH ON UNITARY MENTAL TRAITS

KARL J. HOLZINGER
University of Chicago

When Professor Spearman conceived the idea that the arrangement of a set of intercorrelations could be used to determine factors underlying a set of variables, he opened up an objective method in psychology that has been gathering momentum ever since. After the publication of *Abilities of Man,* in 1927, interest in factor theory began to spread widely throughout America, engaging the attention of such workers as Professor Truman Kelley and Professor T. V. Moore. In a book entitled *Crossroads in the Mind of Man* (1928) Professor Kelley dealt largely with group factors and new methods for their evaluation. These two volumes laid the immediate foundation for the formation of the Unitary Traits Committee in 1931.

Professor E. L. Thorndike, for years a passive onlooker of methods of factorization, now became an active promoter. Through his influence a committee was formed to study methods of factorization and apply them if possible to large bodies of data. Professor Thorndike named the committee the Unitary Traits Committee and with his characteristic symbolism, "U. T. C. for short."

The Problems and Plans Committee of the American Council on Education empowered Professor Thorndike to act as chairman of this committee and secured a grant of money from the Carnegie Corporation for the purpose of preparing a plan to study unitary differential traits. The early members of this committee included Professors E. L. Thorndike, Charles Spearman, T. L. Kelley, Clark Hull, Karl Lashley, and Karl J. Holzinger. At later meetings Professors T. V. Moore, Henry Garrett, and Harold Hotelling were added to the committee.

No more fortunate choice of chairman could have been found than Professor Thorndike. In the early meetings of the committee extreme differences of opinion on method and technique were held.

Professor Thorndike saw that all of these views were thoroughly expressed and he managed the debates with great skill and impartiality. His idea seemed to be that, if you can bring together such a group of men often enough and let them express themselves freely enough, eventually a common understanding will follow. This point of view appears to have been justified. After a few meetings misunderstandings, misconceptions, and large differences in methodology began to disappear. At our last meeting there appeared to be few differences upon any of the fundamental issues.

At the first meeting in the fall of 1931 Professor Thorndike expressed his views in the following terms: (1) We seek to describe a person in terms of unitary mental traits with some approach to adequacy and accuracy; (2) many or all traits important in the sciences of man and in human engineering (education, vocational selection and guidance, religion, government, psychiatry, etc.) would be describable as weighted composites of the unitary traits; (3) the intercorrelation of any one such trait with any other would be low; (4) the number of unitary traits should be small. This last idea is essentially Professor Kelley's law of parsimony.

Ideally what Professor Thorndike sought were the unitary traits, say 1 to 20, which would inventory all the primary factors in man's nature, and enable one to calculate all the derived traits. These basic ideas represent substantially the aims of the Unitary Traits Committee throughout the four years of its work.

It was originally intended that the Unitary Traits Committee draw up an elaborate plan for a trait study on a very large scale, with the hope that funds might be forthcoming for its execution. As the meetings progressed, however, it became apparent that much preliminary work needed to be done before such a huge project could be effectively undertaken. A good many difficulties in statistical methodology had to be cleared away, and more effective instruments of measurement perfected before such a study could be made. The main committee was, therefore, broken up into a number of subcommittees for special research. These sub-committees reported at regular meetings of the main committee up to the time of the final meeting in the fall of 1935. At this time it was felt that each subcommittee had gone as far as possible with the aid of the American Council on Education.

During the four years of the existence of the Unitary Traits Committee, definite progress was made in perfecting statistical

techniques, in improving tests, and in actual experimentation on two groups of children. With this theoretical and practical preparation, the committee made its final request for a grant of money to carry on comprehensive study at Mooseheart, Illinois. This proposal included the application of a large and varied battery of tests and ratings, many of which had already been employed in previous investigations. The study also undertook the problem of growth or change in trait with time, so that a five-year program of research was proposed.

In the following paragraphs of this summary we shall deal briefly with the work of the sub-committees which led to the final proposal for a large study. The sub-committees were organized as follows:

1. Mathematical theory and techniques and the improvement of methods of analysis. T. L. Kelley and Harold Hotelling.
2. Methods suggested by recent advances in physiological and comparative psychology. Karl Lashley.
3. Methods suggested by recent advances in mental pathology. T. V. Moore.
4. Experimental studies of analytic methods. H. E. Garrett and Clark Hull.
5. Survey of existing tests and experiments in factorization. C. Spearman and Karl J. Holzinger.
6. Factor analysis studies at Thorp and Mooseheart Schools conducted by Charles Spearman and Karl J. Holzinger, sponsored in part by the University of Chicago.

A detailed statement of all of the work of these sub-committees is beyond the scope of the present summary. We shall, therefore, indicate the work of each in broad outline chiefly as it bears upon the final proposal of the Unitary Traits Committee for a comprehensive study of mental traits.

The Committee on Mathematical Methods

During the early meetings of the Unitary Traits Committee some criticism was made of existing methods of factorization, chiefly those of Professor Kelley in *Crossroads in the Mind of Man.* Professor Kelley was already at work amending these techniques, and enlisted the aid of Professor Harold Hotelling to further this work. As a mathematical statistician Professor Hotelling was of great service to the committee. He contributed many valuable suggestions

at meetings, and the factorization technique now known as the Method of Principle Components.

Very recently Professor Kelley has published a volume entitled *The Essential Traits of Mental Life* (1935). In this book he has contributed a method of factorization which appears simpler than that of Hotelling, but which gives the same results. In addition to this new technique Professor Kelley makes a comparison of current methods of factorization. He also presents the view that "a trait becomes a trait because of a social recognition of it, and the more it is recognized and valued by society, the more of a trait it is."[1] Starting with this point of view, he presents an analysis of occupational groups from the United States Census classifications of 1930.

Suggestions from Physiology and Comparative Psychology

After considering the applicability of methods of factorization to the primates or lower mammals Professor Lashley came to the opinion that it was inadvisable at this time. One could test 100 children in 100 traits in the time required to test 10 monkeys for 10 traits and have greater reliability of the individual tests and probably a better insight into a majority of the traits, in the work with human material.

The sole advantage of the work with animals is in the possibility of correlating a controlled physiological variable against behavior, thus being fairly sure that one of the variates is a unitary function.

Professor Lashley proposed as a general policy that if work be done with animals it be so planned that the testing for unitary traits would at the same time provide material for the physiological interpretation of the results. He urged as a next step in his own research the necessity for testing a large number of normal rats, and of rats with cerebral lesions, in the greatest possible number and variety of situations. Following this would come the analysis of the data by some test for common factors and the relation of these to the locus and extent of the cerebral lesion.

A good deal of doubt was also expressed as to whether anything of value for unitary traits could be gotten out of current physiology of the nervous system. In view of these doubts and other practical difficulties Professor Lashley was of the opinion that in the immediate future the efforts of the committee be directed toward the

[1] T. L. Kelley, *The Essential Traits of Mental Life* (Cambridge, Mass., 1935), p. 63.

mental traits of children as revealed by tests, and that his own program be pursued independently over a longer period of time.

The Psychotic and Prepsychotic Character[2]

"In a previous study of the correlation of symptoms of the mental disorders, it was found that, out of forty symptoms, one could form four groups of an emotional, and one of a cognitive, character. Within each group the Spearman tetrad difference technique demonstrated the presence of an underlying common factor. The unity of the underlying factor does not necessarily imply anything simple and incapable of resolution into more ultimate units; but it does indicate that the group of symptoms which possess one and the same general factor is united by a common matrix of causality.

"It was further found that when the common factors of the groups were intercorrelated, there was a super-general factor underlying all the syndromes of the group.

"The factors in the mental disorders found by our analysis were not without intimate relation to the clinical entities of psychiatry.

"What we termed the catatonic syndrome picked out cases of catatonic dementia praecox; the deluded and hallucinated syndrome picked out cases of paranoid dementia praecox; the euphoria-irritability syndrome picked out cases of manic excitement; the syndrome of constitutional hereditary depression picked out cases of anxious depression. One could statistically fuse with these anxious depressions the retarded depressions, which, on the surface, present a very different picture.

"The question then arose, What is the relation between the character traits of the psychosis and the prepsychotic character of the patient? Can any type of character manifest with equal facility any type of psychosis? The answer to this question might not only throw some light on certain problems of psychiatry, but also open a valuable approach to the study of character."

Experimental Studies of Analytic Methods

Dr. Henry Garrett made a very valuable analysis of a number of verbal, number, and spatial tests. He discovered a common factor throughout these variables and also identified and measured several group factors.

[2] T. V. Moore, "The Essential Psychoses and Their Fundamental Syndromes," *Studies in Psychology and Psychiatry*, 1933, III, 3 f.

With the assistance of his graduate students Professor Hull set up a number of artificial variables resulting from dice throws and made factoral analyses of the resulting correlations. By applying the methods of Thurstone and Hotelling he found that no very close duplication of his original hypothetical factors resulted. In fact, in one analysis he found "that nothing remotely resembling the theoretical expectation is obtained." These findings were in accord with an earlier study by Holzinger in which it was pointed out that duplication of hypothetical factors by subsequent factorization was exceedingly improbable because of the lack of uniqueness in the obtained factor patterns. Except under certain rare conditions we cannot hand the factorist an "envelope of hypothetical factors and variables" and hope to have him reveal the contents of the envelope in terms of postulated factors. The factors are present, of course, but their form may be greatly disguised by the particular form of analysis employed.

Hull's critical studies brought out very clearly the view now held by all members of the Unitary Traits Committee that all factorizations of variables are somewhat arbitrary and that the resulting pattern weights need not necessarily correspond to either hypothetical or real factors in the form expressed. In analyzing a set of observed variables by factor methods we therefore arrive at a possible way of thinking about mental traits rather than a necessary form of expression of invariable psychological traits. The factors that underlie such a set of variables may be set up in an infinite number of ways to produce the observed correlations. What the factorist seeks is the simplest, most parsimonious, and most useful pattern for the interpretation of the underlying variables. The problem becomes one of permission rather than compulsion, and on this point rest many of the criticisms of all factor theory by its disbelievers.

The view of the present writer may be indicated by a simple example. Let us assume that a dozen tests have been correlated and that the table of coefficients shows a cluster of specially large correlations among four of the tests. If we postulate an extra group factor among these four tests and apply appropriate technique we may obtain a pattern in which a general factor runs throughout all twelve variables and a group factor throughout four of the tests. The pattern may reproduce the correlations to the proper degree of error, and is merely another way of expressing the whole correlation table.

The two factors analyzed describe the whole set of twelve variables in a simple and parsimonious manner. In most cases meaning can be ascribed to the group factor (or factors) from the nature of the tests involved. Now there is no compulsion about this factorization. It might be argued that fifty-seven factors of another form produced the correlations, or if you please, an infinite number of factors could be assumed. All such speculation is rather idle, however, because there is no means of statistical verification in pattern form. There is also no objection to holding both views at the same time, i.e., that the correlations were produced by two factors and simultaneously by a very large number. The trouble with the latter view is that it cannot be verified objectively and because of its complexity has little or no scientific interest. The useful view is to reduce the factors to a few and to assign meaning as the variables are improved and the factorizations become more adequate.

There is not much more sense in reverting to the theory of innumerable factors than there is in thinking of a person's score in an arithmetic test in addition as made up by the separate operations of each example conditioned by the host of influences involved in each problem. There is, however, a great deal of value in viewing mental life in terms of abilities, each undoubtedly complex, but yet revealing more or less distinct type of behavior. Thus in the twelve variable examples above, the extra correlation among the four variables was the result of a form of mind behavior different from that exhibited in the eight other tests. This distinction in behavior is worthy of study and may be objectively expressed in the form of a factor, the final meaning of which may be revealed from the nature of the individual tests and similar ones after their statistical purification. Out of all this emerges the view that if mental life may be studied with interest and simplicity in terms of ordinary assumed abilities, it may be dealt with far more effectively in terms of the new factors. The latter are merely statistical refinements of the former and may have far more value and precision in meaning.

As will be shown in a later paragraph, it is possible from one study to think of the performance on nearly one hundred varied tests in terms of less than ten factors. Each factor has clearer meaning than the constituent tests and thus there is a gain both in parsimony and clarity of interpretation. To refuse this view because the factors at the early stages of analysis may not appear to have psychological reality of permanence is a step backward in scientific thinking.

Survey of Existing Tests and Experiments

In anticipation of the large project of the Unitary Traits Committee and in preparation for two studies made in schools near Chicago, Professors Spearman and Holzinger were assigned to the task of reviewing existing tests, studies, and ideas relating to factor theory.

A letter was sent by Professor Spearman to leading psychologists all over the world with a request for ideas or suggestions of any sort bearing on the problem of Unitary Traits. Many very helpful suggestions were made by these correspondents and incorporated in the plans of the Chicago studies.

A survey of existing tests of abilities was also made by the writer in the form of an annotated bibliography. Professor Spearman reviewed all existing work in factor analysis that would aid in any way in the proposed studies.

Factor Analysis Studies at Thorp and Mooseheart Schools

In the early work of the Unitary Traits Committee it was proposed that Professors Spearman and Holzinger carry out a small experiment at Chicago along the lines of the large project of the main committee. Opportunity for this research was afforded by the residence of Professor Spearman at the University of Chicago for two quarters as a guest professor.

During the spring of 1933 two schools were made available for testing, one the Thorp Elementary School of Chicago, the other the Mooseheart Schools at Mooseheart, Illinois. The original small project now began to grow by leaps and bounds. Utilizing all previous work in factor analysis as far as possible, Professor Spearman finally adopted a testing program in these two schools encompassing nearly one hundred tests and eleven hundred children.

Profesor Spearman's zeal and faith in ultimate backing for these large projects were justified as the work progressed. Very substantial assistance was given by Dr. Judd through the Department of Education, by the Social Science Research Fund of the University, from the Carnegie Corporation, and from Professor Spearman himself.

The task of giving tests, scoring them, and making subsequent analyses was taken over by the statistical laboratory of the Department of Education with the large share of responsible work done by Miss Frances Swineford. After two years of careful analysis, it

seemed desirable to issue the findings of the sub-committee in preliminary form chiefly as a report to the main committee. Two samples of approximately one hundred cases were therefore analyzed and the thousands of correlations and factoral analyses presented in *Preliminary Reports of Spearman-Holzinger Unitary Trait Study,* Nos. 1-7. At the present time Report Number 8 dealing with the measurement of a person's factors, and Report Number 9 based on 355 cases are in preparation.

In the factorization of these data the methods of Professor Spearman have been used throughout with the addition of a modification called the Bi-Factor Method. The large sets of variables have been reduced to simple factor patterns involving a general factor and seven or eight relatively small group factors. The adequacy and goodness of space were generally tested by examination of the residual correlations after various factors had been eliminated.

Other problems dealt with in these reports include the experimental study of the Sampling error in pattern coefficients and methods for estimating the factors of a single person. Owing to the large variation in Sampling and the unreliability of certain tests, the whole analysis is being repeated on the better tests with a Sample of 355 cases.

The whole method of analysis and evaluation of factors for a person are extremely simple and direct as compared with other current techniques. The authors are also of the opinion that the measurements of ability have psychological significance and practically usefulness not always found in factorizations.

I. P. PAVLOV (1849-1936)

M. J. SEREISKY
The Maxim Gorky Medico-Genetical Research Institute, Moscow

Ivan Petrovich Pavlov was born in Ryazan. The son of a priest, he began at an early age to study for the priesthood, but under the influence of the progressive ideas of the sixties of the last century he entered the faculty of natural sciences in Petrograd in 1870. After completing this course he entered the Military Medical Academy and in 1879 received the M.D. degree. As a student he at one time studied physiology under the well-known physiologist Heidenhein. Moreover, from 1884 to 1886 he worked in Ludwig's laboratory. Sechenov, Zion, and Claude Bernard greatly influenced him during this period. In 1883 he was appointed lecturer at the Military Medical Academy; in 1890 he joined the department of pharmacology and in 1896 the department of physiology. Pavlov played an important rôle in the organization of the Institute of Experimental Medicine in Leningrad, directing the work in physiology. Since 1907 he was also the director of the Physiological Institute in the Academy of Science. Moreover, in the past few years he directed the scientific work in the Biological Station at Koltushi, near Leningrad. He was also very active in numerous Russian and foreign congresses on physiology and psychology. He has left behind numerous and important schools of physiologists, Russian and foreign.

Pavlov's work may be divided into four periods, each characteristic of a certain phase of his scientific career. The first period was chiefly concerned with the mechanism of innervation of heart activity. Even as early as this, Pavlov's interest in the nervous system was clearly evident. His dissertation in 1883 was the first to establish the existence of a strengthening and weakening of heart nerves.

The second period of his scientific career was devoted to a study of digestion. As early as 1878 Pavlov reported on the significance of the nervous mechanism in the secretion of gastric juice. In the years that followed he did a great deal of systematic work in this

field. In 1904 he was awarded the Nobel prize for his work in the field of the physiology of digestion. In 1907 his lectures on the primary digestive glands appeared and were translated into all the European languages. He showed the influence of the vagus nerve on the secretive activity of the stomach glands. Making use of the so-called method of the "isolated stomach," he was able to obtain gastric secretion from a dog by means of imaginary feeding. Pavlov laid the foundation for future research in the physiology of digestion. Just as in the first period of his scientific career, so here too he fixed his attention upon the nervous system as the regulator of digestion.

The third period of his scientific development was devoted chiefly to the conditional reflex and followed directly from the preceding ones. Consistent and stubborn examination of the dependence of digestion upon psychological factors finally brought Pavlov to his remarkable study of the conditional reflex. The systematic exposition of this phenomena was presented in two monographs: *Twenty Years of Experimental Work on the Higher Nervous Functions in Animals* and *Lectures on Experimental Work on the Hemispheres of the Brain.* While the surgical method brought a good deal to the study of the physiology of the brain, still it was Pavlov who, in his work on the conditional reflex, was the first to suggest an experimental method in the study of the brain without recourse to surgical procedures that invariably injure or destroy the brain. The study of delicate brain processes became a possibility only after the appearance of Pavlov in this realm of research. The laws of excitation and inhibition, irradiation and concentration, induction, etc. were fundamental to the study of the brain processes. All of this formed the foundation for the last period, for Pavlov's research in the pathophysiology of the nervous system. Despite his eighty years, Pavlov began research in the study of the very perplexing question of the human psyche. All of his work up to this period is so widely known that it is only necessary to examine in detail this last phase of his scientific career. In numerous works Pavlov approaches very closely the problem of the patho-physiological mechanism that is inherent in mental disease. On the basis of detailed study of mental patients he arrived at the conclusion that fundamentally schizophrenia is a chronic hypnotic-inhibitory state. The reason for this condition—a weakening of the brain cells—is to be sought in hereditary or acquired factors. In hypnotic inhibition, Pavlov saw the protection of

the brain cells of the cortex from death. In this way we find that there is a union between normal activity and the defensive inhibition. His conclusion was not correct, it is true, for all types of schizophrenia, as Pavlov thought, but only for certain forms. He found support in the results obtained by the present writer in subjecting schizophrenics to periods of prolonged sleep. Pavlov lent full support to these attempts and in his last days he himself tried similar experiments.

His work on hysteria is of particular interest. He emphasized that hysterics, to a greater or lesser degree, live in a world of emotion rather than of reason, conditioned more by sub-cortical rather than cortical nervous activity. Emotional reactions are due to subcortical excitation which causes negative induction in the higher cortical centers. Pavlov's conclusions are in agreement with the modern tendency to relate mechanisms of hysterics to sub-cortical layers of the brain.

Pavlov's attempts to give a physiological explanation of compulsion neurosis and paranoia are extremely interesting. Initial trials disclosed an interesting fact, well known in the studies of the conditioned reflex in dogs: That periods of excitement are due to pathological changes and that the excitations become stable and inert. Pavlov speaks of "pathological inertness" and of "certain isolated pathological parts of the cortex" in a compulsion syndrome, as a result of which the normal period of irritable processes is interrupted. In this way the dynamics of the cortex change. Pavlov considers these pathological parts of the cortex not only in an anatomical but in a structural-dynamic sense. In the same way Pavlov explains the muscular stereotypy and perseveration among schizophrenics.

Having approached the general problem of psychopathology, it was impossible for Pavlov to escape the problem of constitution, the problem of the principal types of higher nervous activity. This work, one of his very last, is also of interest. In classifying the principal types of the higher nervous activity in animals, Pavlov noted the following factors: (1) the strength of nervous processes which may be both stimulating and inhibitory; (2) mobility of these processes (inertness and labileness); and (3) equilibrium between these processes. On this basis Pavlov distinguishes, to begin with, between *strong* and *weak* types, i.e., strong and weak nervous processes. The strong type is further equally divided into *balanced* and *excitable* types. The balanced, depending upon the rate of the activ-

ity of their nervous processes, are in turn divided into *quiet* and *lively* types. Finally, the weak types are characterized by inhibitory processes. According to Pavlov this classification agrees to some degree with Hippocrates's classification Choleric types correspond to Pavlov's excitable types; melancholic to the inhibitory; phlegmatic types to well-balanced-quiet; sanguine types to well-balanced-lively. The problem of constitutional types led Pavlov to the question of the geno-paratypical factors in the genetics of the higher nervous activity. Pavlov's research on constitutional types is closely connected with his work on neuroses. There are three factors which can evoke pathological processes in the nervous system: over-activity of the excitable processes, that of the inhibitory processes, and mobility of the nerve processes, the latter depending upon the transition from an inhibitory state of the cells to an excitable state and vice versa. This is particularly easy to establish in excitable animals which have a weak nervous system. It is in connection with these last researches that Pavlov was able to throw some light on the question of therapy. He suggested treatment with micro doses of bromine with the instructions that the dose should be of a strength proportional to the condition of the nervous system. He concluded that the majority of cases of diseases of the nervous system are connected with the breaking down of the correct relationships between excitatory and inhibitory processes. In the administration of caffein and bromide, Pavlov noted two chief levers in nervous activity concerned with the correct interrelation of these processes.

Notwithstanding the fact that he would not allow the term "psyche" to be used in his laboratory, he nevertheless not only accepted this expression but gave an enormous amount of significant material from his researches to the study of the human psyche. He wrote that he was not a clinician, that he remained a physiologist, and that it would be too late now for him to become a clinician.

There is no doubt that a number of his conclusions are open to question. Thus he generalized results in the patho-mechanism of isolated groups to include all cases of schizophrenia. There is no doubt that Pavlov slightly underestimated the complexity of the human psyche. Nevertheless, one can say without exaggeration that, to use his own words, "the steady march of science which in the time of Galileo halted only before the higher science of the brain," received a mighty impetus and further development due to Pavlov. Although psychiatry always had its patho-anatomy and a phase of

patho-chemistry, its patho-physiology was due to the work of Pavlov, thus completing the trend of classical psychiatry of Wernike, Kraepelin, and others.

Several words, in conclusion, about Pavlov the man. He was that very rare combination of a cautious scientist, a man of rare imagination, exceptional optimism which grew with age, colossal organizing ability and precision of thought. Until his very last days there was liveliness in his gait, vivacity in his appearance, and his handwriting did not show traces of senility. Such is the man whose name will live for many centuries.

The Soviet Government paid particular attention to and took special interest in the work of Pavlov. Even during the very strenuous days of the Revolution, the Government allowed him considerable sums of money with which to continue his work. In recent years an entire scientific station, Koltushi, was built. It has the most modern equipment. In the last years of his life Pavlov expressed deep pride at the outstanding achievements of the Soviet Government. This was evident in his speeches made during the International Physiological Congress in Moscow last summer.

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